Viejas Hotel South Tower Project Draft TEIR

Appendix B

Traffic Impact Analysis

Prepared by Linscott, Law & Greenspan, Engineers

February 27, 2014

LINSCOTT LAW & GREENSPAN engineers

TRAFFIC IMPACT ANALYSIS

VIEJAS HOTEL SOUTH TOWER

Alpine, California
February 27, 2014

LLG Ref. 3-14-2309

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EXECUTIVE SUMMARY

Linscott, Law and Greenspan, Engineers (LLG) has prepared the following traffic study for the proposed *Viejas Hotel South Tower* on the Viejas Indian Reservation. The project proposes to develop a 128-room six-story hotel located adjacent to the existing Viejas Casino and Viejas Hotel North Tower on the north side of Interstate 8, between West and East Willows Road in the community of Alpine. The Casino currently offers approximately 133,000 square feet (SF) of gaming area in a 325,000 SF casino. Current gaming offerings include 2,000 slot machines, 86 gaming tables, a 150-seat off-track betting facility, a 750 seat bingo pavilion, a special events venue, five restaurants, a 150-room hotel and a parking structure. With construction of the recently developed first Viejas hotel, the Casino reduced the amount of original gaming area by approximately 20,000 SF. The proposed project would add approximately 16,500 SF of gaming area in the new development.

The expansion will occur on a currently developed and paved area at the southeast corner of the casino. The expansion would demolish the existing office space on the southeastern portion of the casino and replace it with a second hotel tower. The south hotel tower would include additional gaming space, a kitchen in the basement, ballroom, pre-function terrace, meeting rooms, bar and retail. The office space would be relocated within the existing facility.

Existing traffic volumes (peak hour and ADT) were obtained for both the weekday and Saturday timeframes. The trip generation rate for the proposed project was utilized from the County of San Diego document titled *Traffic Needs Assessment of Tribal Development Projects in the San Diego Region.* The project is calculated to generate 384 ADT with 27 trips (11 inbound/ 16 outbound) during the weekday PM peak hour.

The following scenarios were evaluated:

- Existing
- Existing + Project
- Existing + Project + Cumulative Projects

The intersection and segment analyses were conducted for the scenarios discussed above for both a weekday and Saturday.

No significant direct or cumulative project impacts were identified. Therefore, no mitigation measures are proposed.

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TRAFFIC IMPACT ANALYSIS

VIEJAS HOTEL SOUTH TOWER

Alpine, California
February 27, 2014

1.0 INTRODUCTION

1.1 Purpose of the Report

Linscott, Law & Greenspan Engineers (LLG) has been retained to assess the traffic impacts associated with the proposed *Viejas Hotel South Tower* on the Viejas Indian Reservation. The project site is located adjacent to the existing Viejas Casino and just south of the recently constructed Viejas Hotel North Tower at 5000 Willows Road, on the north side of Interstate 8, east of the Community of Alpine. The project proposes to develop a 128-room six-story hotel.

The traffic analysis presented in this report includes the following:

- Project Description
- Existing Conditions Assessment
- Traffic Analysis Methodology
- Significance Criteria
- Existing Analysis
- Project Trip Generation/ Distribution/ Assignment
- Cumulative projects
- Near-Term Analysis
- Site Access and Other Issues Discussion
- Significance of Impacts and Mitigation

Figure 1–1 shows the vicinity map. ***Figure 1–2*** shows a more detailed project area map.

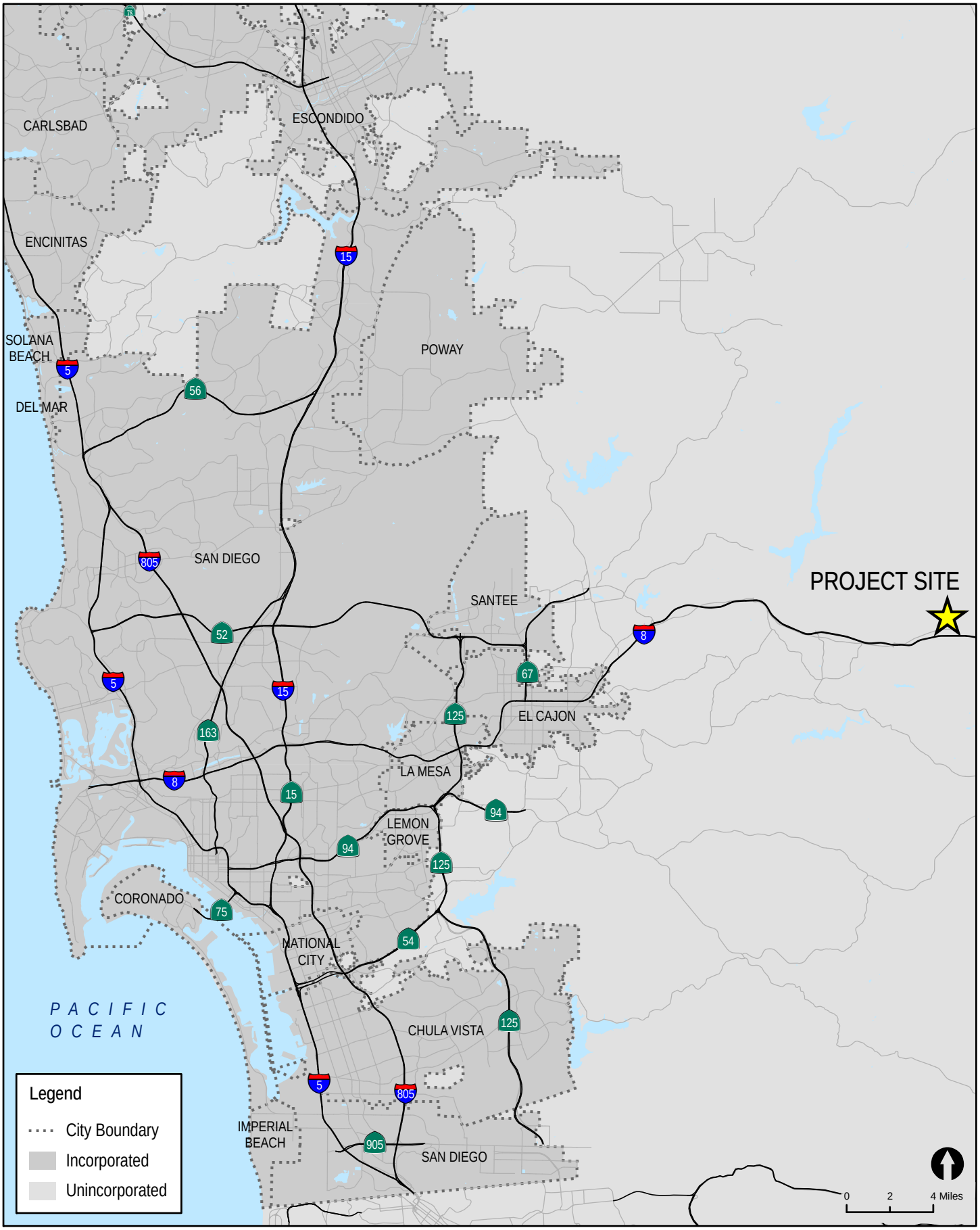

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Figure 1-1

Vicinity Map

VIEJAS HOTEL SOUTH TOWER

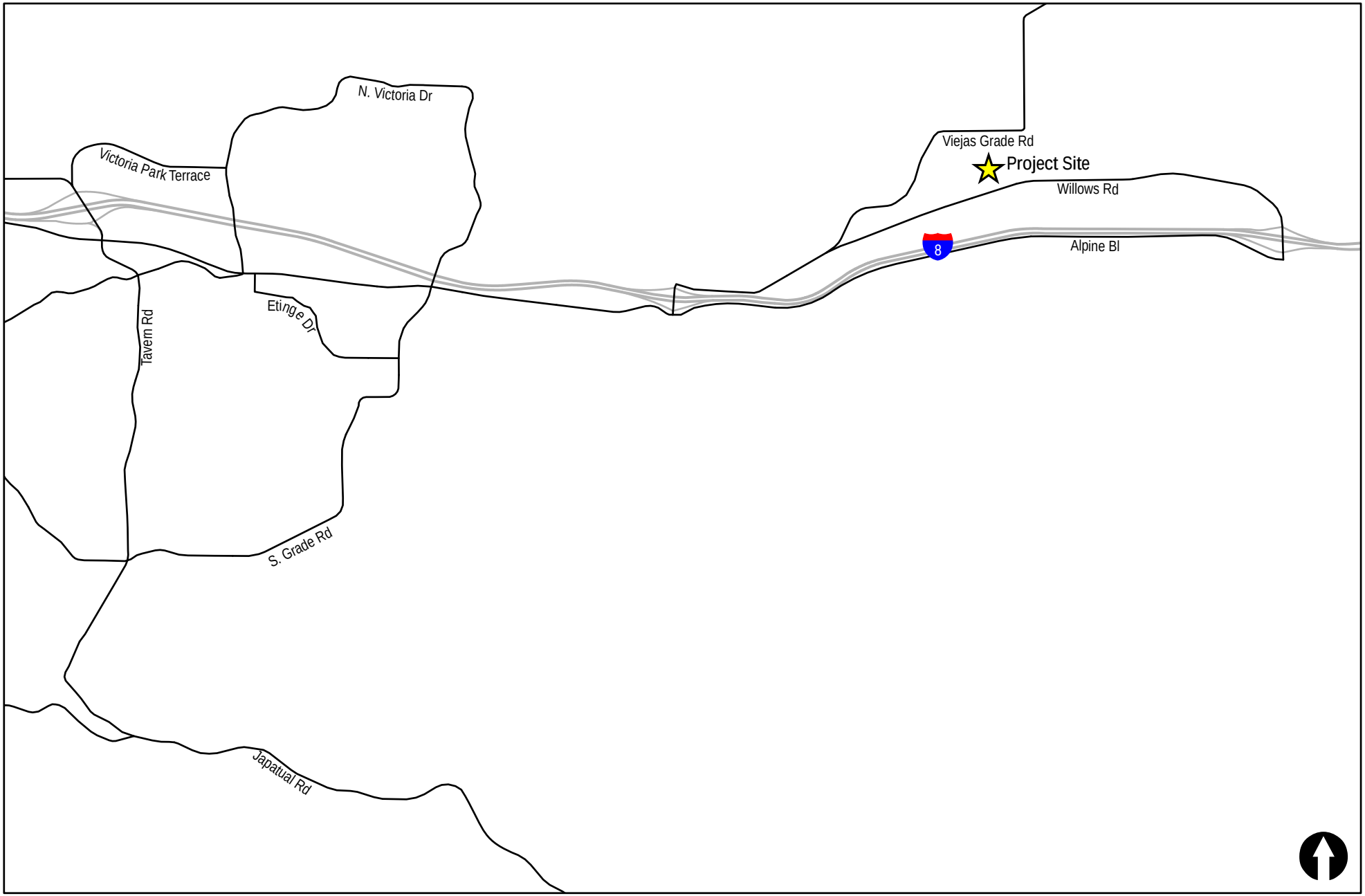

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Figure 1-2

Project Area Map

VIEJAS HOTEL SOUTH TOWER

2.0 PROJECT LOCATION AND DESCRIPTION

2.1 Project Location

The proposed project is located on Willows Road north of Interstate 8 on the Viejas Indian Reservation. The I-8 / West Willows Road and East Willows Road interchanges provide regional access to this project.

2.2 Project Description

The proposed project is a 128-room six-story hotel located adjacent to the existing Viejas Casino and Viejas Hotel North Tower. The expansion will occur on a currently developed and paved area at the southeast corner of the casino. The expansion would demolish the existing office space on the southeastern portion of the casino and replace it with a second hotel tower. The south hotel tower would include additional gaming space, a kitchen in the basement, ballroom, pre-function terrace, meeting rooms, bar and retail. The office space would be relocated within the existing facility.

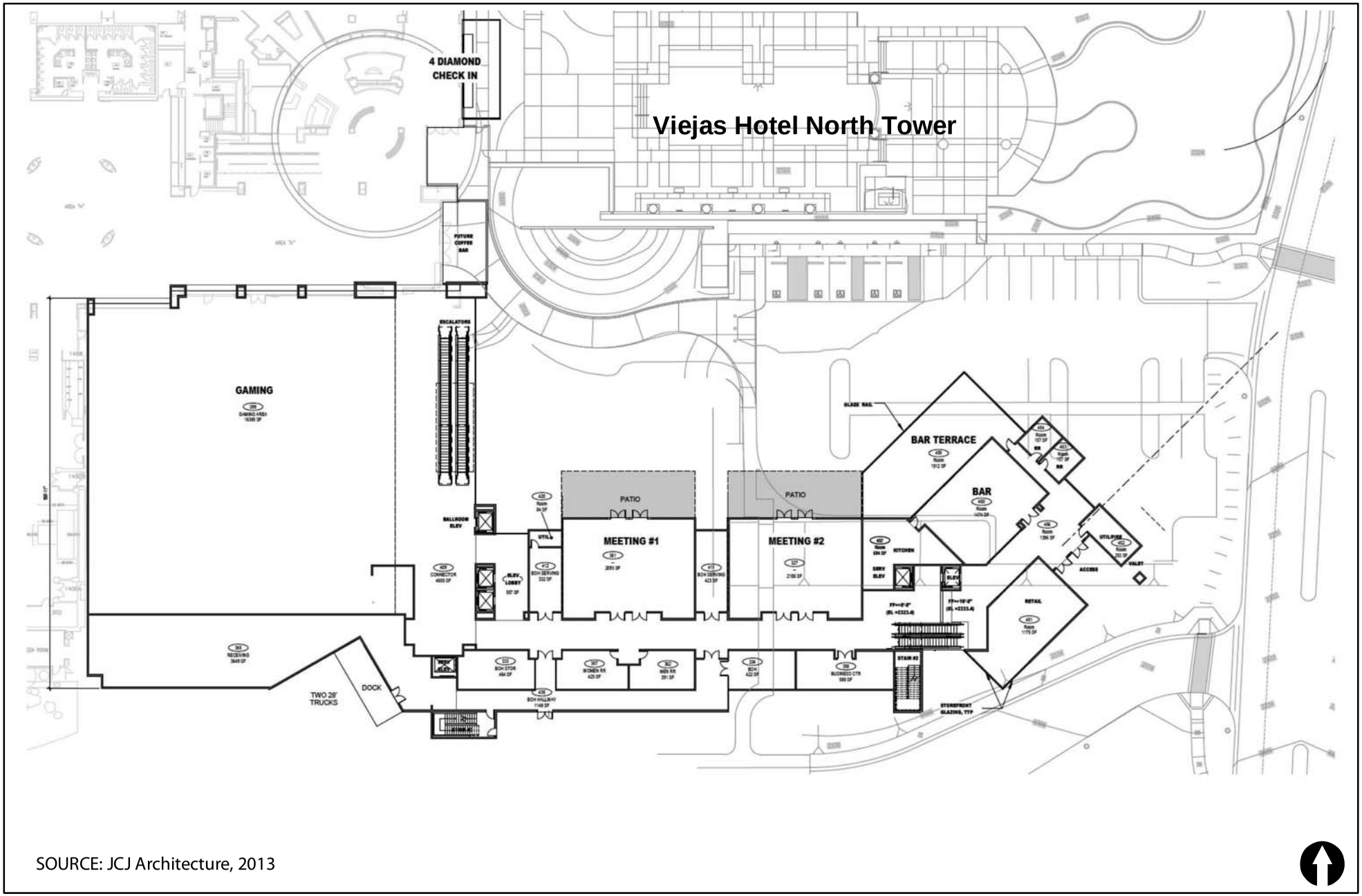
The Casino currently offers approximately 133,000 SF of gaming area in a 325,000 SF casino. Current gaming offerings include 2,000 slot machines, 86 gaming tables, a 150-seat off-track betting facility, a 750 seat bingo pavilion, a special events venue, five restaurants, a 150-room hotel and a parking structure. With construction of the recently developed first Viejas hotel, the Casino reduced the amount of original gaming area by approximately 20,000 SF. The proposed project would add approximately 16,500 SF of gaming area in the new development.

No new infrastructure would be required, or is proposed, for the proposed Viejas Hotel South Tower.

2.3 Project Access

Access to the hotel is available via the existing all-way stop controlled intersection, east of the casino, which also serves the north hotel tower and the newly constructed parking structure.

Figure 2–1 depicts the proposed site plan.



SOURCE: JCJ Architecture, 2013

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Figure 2-1

Conceptual Site Plan

VIEJAS HOTEL SOUTH TOWER

3.0 EXISTING CONDITIONS

3.1 Study Area

The study area for this project encompasses areas of anticipated impact related to the project. The scope of the study area (bi-directional 25-peak hour project trips) was developed based on the guidelines outlined in the "*County of San Diego Report Format and Content Requirements – Transportation and Traffic – First Modification February 19, 2010"* manual, existing traffic volumes to the Viejas Casino, the proposed project distribution, and a working knowledge of the local transportation system based on LLG's prior work in this area.

The intersections and segments included in the study area are listed below. These locations were chosen since they will carry the majority of project traffic.

Intersections

1. Willows Road (West) / I-8 Westbound ramps
2. Willows Road (West) / I-8 Eastbound ramps
3. Willows Road (West) / Alpine Boulevard
4. Willows Road / Viejas Grade Road
5. Willows Road / West Viejas Casino Entrance
6. Willows Road / East Viejas Casino Entrance
7. Willows Road (East) / I-8 Westbound ramps
8. Willows Road (East) / I-8 Eastbound ramps

Street Segments

1. Willows Road – West of Viejas Casino/ Hotel site
2. Willows Road – East of Viejas Casino/ Hotel site

3.2 Existing Transportation Conditions

The following is a brief description of the streets in the project areas. ***Figure 3–1*** shows an existing conditions diagram.

Interstate 8 (I-8) is an east/west facility that extends as a freeway from the San Diego area eastward to the California-Arizona border and beyond. It provides three lanes Eastbound and two lanes westbound lanes in the project area. The posted speed limit of Interstate 8 is 70 mph in the project area. Local interchanges are provided at Willows Road (west) and Willows Road (east).

Willows Road is constructed as a two lane undivided roadway east and west of casino and as a four-lane roadway along the casino frontage. According to the County of San Diego General Plan, Willows Road is classified as a Rural Light Collector east and west of the casino, and as a Boulevard in the immediate vicinity of the casino. Passing is allowed on some portions of the roadway. The posted speed limit is 45 mph and 50 mph. Bus stops are provided on West Willows Road. Access to the project site is via the I-8 interchanges at West Willows Road and East Willows Road only.

3.3 Existing Traffic Volumes

Peak Hour Intersection Volumes

LLG commissioned manual intersection turning movement counts during the weekday (Thursday, October 24, 2013, 4-6 PM) and weekend (Saturday, February 22, 2014, 4-6 PM). These timeframes were selected as they represent highest traffic loads due to commuter and casino traffic, respectively.

Daily Segment Volumes

Bi-directional daily traffic counts were conducted on the street segments during the weekday (Thursday, October 22, 2013) and weekend (Saturday, February 22, 2014).

Table 3–1 is a summary of the average daily traffic volumes (ADTs). ***Figure 3–2*** shows the existing weekday and existing Saturday traffic volumes on a PM peak hour and daily basis. ***Appendix A*** contains copies of the intersection manual count sheets and ADT count sheets.

TABLE 3–1
EXISTING TRAFFIC VOLUMES

Street Segment	Existing ADT[a]	
	Weekday	Saturday
Willows Road		
West of Viejas Casino	8,080	11,760
East of Viejas Casino	2,550	3,320

Footnote:

a. Average Daily Traffic Volumes.

3.4 Counts Comparison

LLG originally conducted traffic counts on Willows Road in Year 2011 through our work on the Viejas Hotel North Tower. LLG conducted an ADT comparison between the Year 2011 and Year 2013 traffic counts. Based on our review, the Year 2011 – Year 2013 change in traffic counts were as high as 4.5% on a weekday and 21.6% on a Saturday (this percent increase is on the lightly traveled portion of Willows Road east of the casino. However, Saturday counts remained consistent west of the casino with only a 0.4% decrease). The higher volumes translate to slightly higher overall delays as compared to the past analyses as described in Sections 6.0 and 9.0. *Appendix A* contains the traffic volume comparison table.

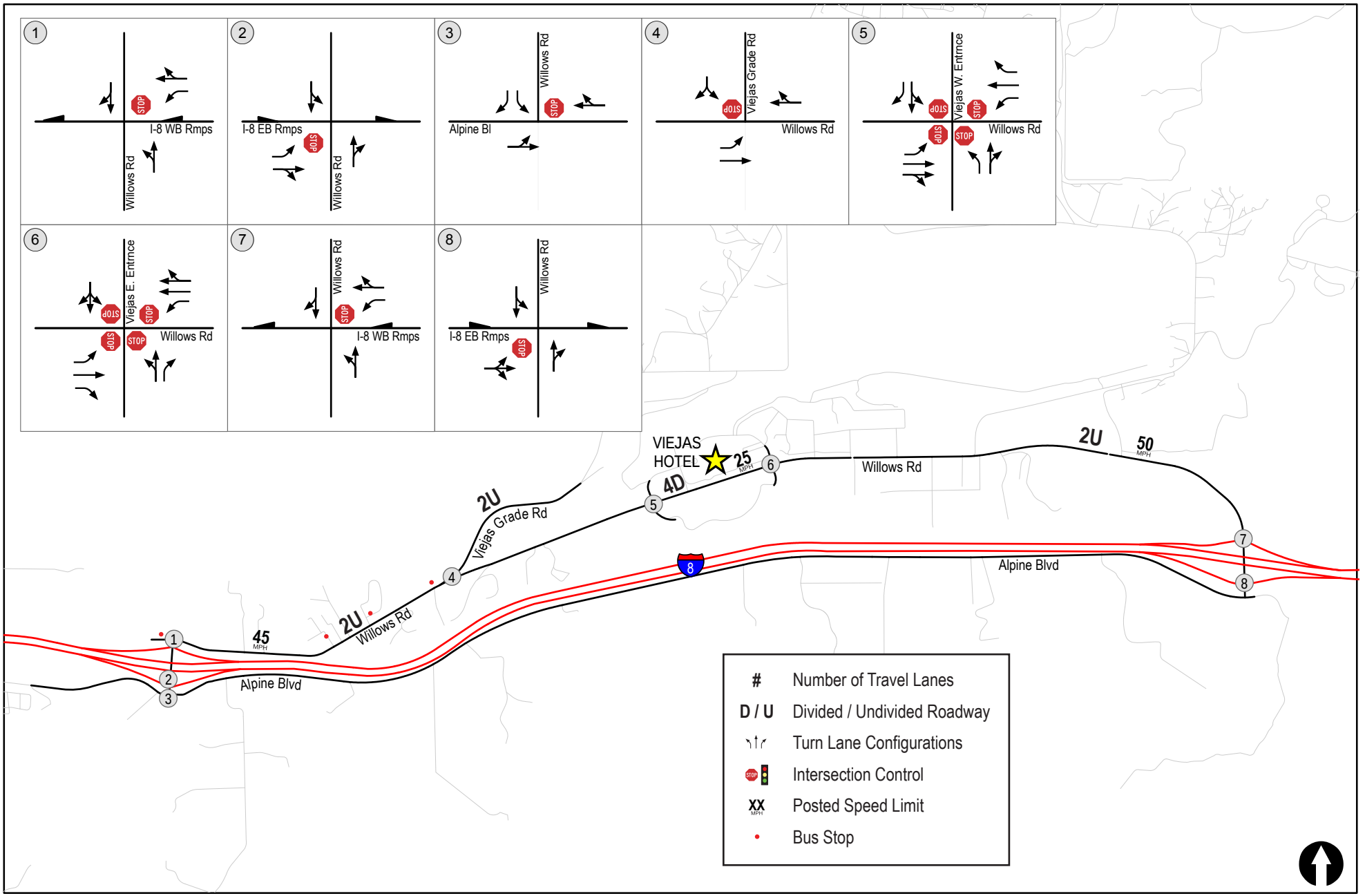

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Figure 3-1

Existing Conditions Diagram

VIEJAS HOTEL SOUTH TOWER

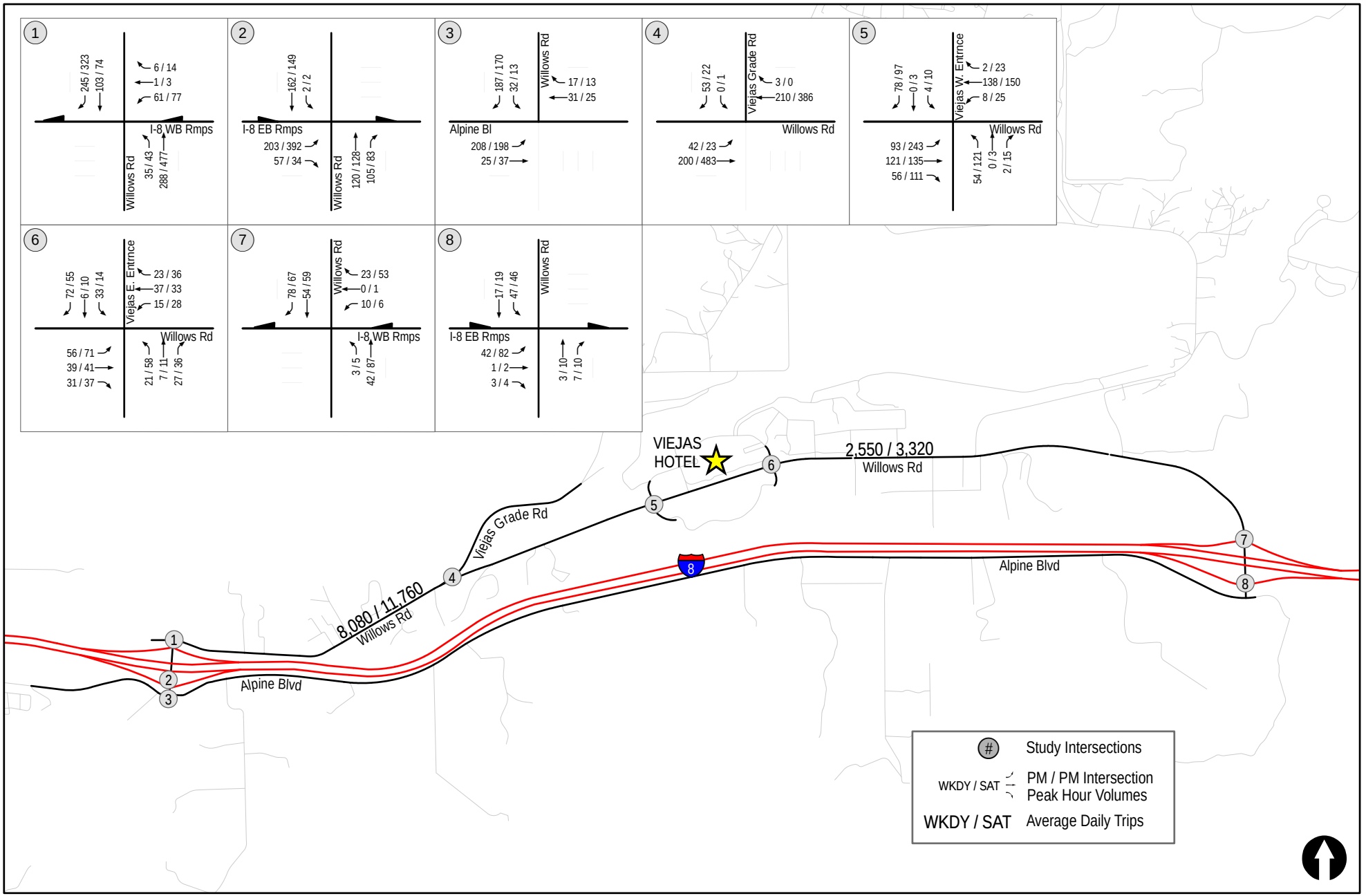

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Figure 3-2

Existing Traffic Volumes

VIEJAS HOTEL SOUTH TOWER

4.0 ANALYSIS APPROACH AND METHODOLOGY

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service designation is reported differently for signalized intersections, unsignalized intersections and roadway segments.

4.1 Intersections

Each study area intersection is unsignalized. These were analyzed under PM peak hour conditions. Average vehicle delay and Levels of Service (LOS) was determined based upon the procedures found in Chapter 17 of the *2000 Highway Capacity Manual (HCM),* with the assistance of the *Synchro* (version 7) computer software. However, study area intersections at both Viejas Casino driveways were analyzed with the assistance of the *Synchro* (version 8) for multi-lane unsignalized intersections as *Synchro* (version 7) does not have the capability. Average vehicle delay was determined utilizing the methodology found in Volume 3: Interrupted Flow, Chapter 20 of the *2010 Highway Capacity Manual (HCM)*. Unsignalized intersection calculation worksheets and a more detailed explanation of the methodology are attached in ***Appendix B***.

4.2 Street Segments

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the County of San Diego's *Roadway Classification, Level of Service, and ADT Table*. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. The County of San Diego's *Roadway Classification, Level of Service, and ADT Table* is attached in ***Appendix C***.

5.0 SIGNIFICANCE CRITERIA

The following criterion was utilized to evaluate potential significant impacts, based on the *County of San Diego Guidelines for Determining Significance—Transportation and Traffic*, dated June 30, 2009 with a first modification effective February 19, 2010. The County of San Diego's General Plan Mobility Element discusses the County's Level of Service criteria under Goal M-2. It requires that development projects provide associated road improvements necessary to achieve a level of service of "D" or higher on all Mobility Element roads except for those where a failing level of service has been accepted by the County. The County maintains a list of such roads. West Willows Road, west of Viejas Casino has been accepted at LOS F.

5.1 Road Segments

This section provides guidance for evaluating adverse environmental effects a project may have on street segments. The allowable ADT increases on LOS E/F operation roadways was obtained from County guidelines and are summarized in ***Table 5–1***. The thresholds in *Table 5–1* are based upon average operating conditions on County roadways. Exceeding the thresholds in Table 5-1 would result in a significant impact. It should be noted that these thresholds only establish general guidelines, and that the specific project location must be taken into account in conducting an analysis of traffic impact from new development.

TABLE 5–1
MEASURES OF SIGNIFICANT PROJECT IMPACTS TO CONGESTION ON CIRCULATION ELEMENT ROAD SEGMENTS
ALLOWABLE INCREASES ON CONGESTED ROAD SEGMENTS

Level of Service	Two-Lane Road	Four-Lane Road	Six-Lane Road
LOS E	200 ADT	400 ADT	600 ADT
LOS F	100 ADT	200 ADT	300 ADT

General Notes:

1. By adding proposed project trips to all other trips from a list of projects, this same table must be used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project that contributes additional trips must mitigate a share of the cumulative impacts.
2. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.

5.2 Intersections

This section provides guidance for evaluating adverse environmental effects a project may have on signalized and unsignalized intersections. ***Table 5–2*** was obtained from County guidelines and summarizes the allowable increases in delay or traffic volumes at signalized and unsignalized intersections. Exceeding the thresholds in Table 5-2 would result in a significant impact.

TABLE 5–2
MEASURES OF SIGNIFICANT PROJECT IMPACTS TO CONGESTION ON INTERSECTIONS
ALLOWABLE INCREASES ON CONGESTED INTERSECTIONS

Level of service	Signalized	Unsignalized
LOS E	Delay of 2 seconds or less	20 or less peak hour trips on a critical movement
LOS F	Either a Delay of 1 second, or 5 peak hour trips or less on a critical movement	5 or less peak hour trips on a critical movement

General Notes:

1. A critical movement is an intersection movement (right-turn, left-turn, through-movement) that experiences excessive queues, which typically operate at LOS F.
2. By adding proposed project trips to all other trips from a list of projects, these same tables are used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project is responsible for mitigating its share of the cumulative impact.
3. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.
4. For determining significance at signalized intersections with LOS F conditions, the analysis must evaluate both the delay ***and*** the number of trips on a critical movement, exceedance of either criteria result in a significant impact.

Signalized Intersections—Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic volume or level of service traffic impact on a signalized intersection:

1. The additional or redistributed ADT generated by the proposed project will significantly increase congestion on a signalized intersection currently operating at LOS E or LOS F, or will cause a signalized intersection to operate at a LOS E or LOS F as identified in *Table 5–2*.
2. Based upon an evaluation of existing accident rates, the signal priority list, intersection geometrics, proximity of adjacent driveways, sight distance or other factors, the project would significantly impact the operations of the intersection.

Unsignalized Intersections—The operating parameters and conditions for unsignalized intersections differ dramatically from those of signalized intersections. Very small volume increases on one leg or turn and/or through movement of an unsignalized intersection can substantially affect the calculated delay for the entire intersection. Significance criteria for unsignalized intersections are based upon a minimum number of trips added to a critical movement at an unsignalized intersection.

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic impact on an unsignalized intersection as listed in *Table 5–2* and described as text below:

3. The additional or redistributed ADT generated by the proposed project will add 21 or more peak hour trips to a critical movement of an unsignalized intersection, and cause an unsignalized intersection to operate below LOS D, or

4. The additional or redistributed ADT generated by the proposed project will add 21 or more peak hour trips to a critical movement of an unsignalized intersection currently operating at LOS E, or
5. The additional or redistributed ADT generated by the proposed project will add 6 or more peak hour trips to a critical movement of an unsignalized intersection, and cause the unsignalized intersection to operate at LOS F, or
6. The additional or redistributed ADT generated by the proposed project will add 6 or more peak hour trips to a critical movement of an unsignalized intersection currently operating at LOS F, or
7. Based upon an evaluation of existing accident rates, the signal priority list, intersection geometrics, proximity of adjacent driveways, sight distance or other factors, the project would significantly impact the operations of the intersection.

6.0 ANALYSIS OF EXISTING CONDITIONS

Table 6–1 summarizes the peak hour intersection operations for existing conditions in the study area. As shown, all the study area intersections are calculated to currently operate at acceptable service levels of LOS C or better on both a weekday and Saturday. ***Appendix D*** contains the peak hour calculation sheets for the Existing scenario.

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Existing			
		Weekday		Saturday	
		Delay[a]	LOS[b]	Delay	LOS
1. Willows Road (West) / I-8 WB Ramps	TWSC[c]	15.8	C	22.8	C
2. Willows Road (West) / I-8 EB Ramps	TWSC	13.6	B	22.8	C
3. Willows Road (West) / Alpine Boulevard	TWSC	13.1	B	11.9	B
4. Willows Road / Viejas Grade Road	TWSC	9.8	A	11.3	B
5. Willows Road / West Viejas Casino Entrance	AWSC[d]	9.2	A	12.1	B
6. Willows Road / East Viejas Casino Entrance	AWSC	8.4	A	8.6	A
7. Willows Road (East) / I-8 WB Ramps	TWSC	8.9	A	9.1	A
8. Willows Road (East) / I-8 EB Ramps	TWSC	9.6	A	10.0	A

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. TWSC – Two-Way Stop Controlled intersection. Minor street left turn delay is reported.
d. AWSC – All-Way Stop Controlled intersection.

UNSIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

6.1 Daily Segment Levels of Service

Table 6–2 summarizes the existing weekday and Saturday segment operations along the key study area roadways. As shown, Willows Road is calculated to currently operate at acceptable levels of service with the exception of Willows Road – West of Viejas Casino, which is calculated to currently operate at LOS E on Saturday.

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Classification	Capacity (LOS E) [a]	Weekday		Saturday	
			ADT [b]	LOS [c]	ADT	LOS
Willows Road						
West of Viejas Casino	2-lane Rural Light Collector	16,200	8,080	D	**11,760**	**E**
East of Viejas Casino	2-lane Rural Light Collector	16,200	2,550	B	3,320	B

Footnotes:

a. Capacities based on *County of San Diego Roadway Classification Table (*see *Appendix C*).

b. Average Daily Traffic Volumes.

c. Level of Service.

7.0 PROJECT TRIP GENERATION, DISTRIBUTION, AND ASSIGNMENT

The following is a discussion of the project trip generation calculations and the project traffic distribution and assignment through the local network.

7.1 Trip Generation

Project trips consist of vehicular trips on the street system, which begin or end at the project site and are generated by the proposed development. The project traffic generation calculations were conducted using the trip generation rates published in the County of San Diego document titled *Traffic Needs Assessment of Tribal Development Projects in the San Diego Region (March 2003).* The document indicates a trip rate of 3 trips per room for a hotel. The above document does not specify different trip rates between weekday and weekend timeframes. Hence, 3 daily trips per room were assumed for both weekdays and weekends.

Table 7–1 shows a summary of the project traffic generation. As tabulated the proposed hotel is calculated to generate 384 daily trips with 27 trips (11 inbound/16 outbound) during the PM peak hour.

TABLE 7–1
PROJECT TRIP GENERATION

Land Use	Size	Daily Trip Ends (ADTs)		PM Peak Hour[b]			
		Rate[a]	Volume	% of ADT	In:Out Split	Volume In	Volume Out
Hotel	128 rooms	3 / room	384	7%	40:60	11	16

Footnotes:

a. Rate is based on County of San Diego document titled *Traffic Needs Assessment of Tribal Development Projects in the San Diego Region, March 2003*

b. PM peak hour percentage and In/Out splits are based on "Resort Hotels" shows in *SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002.*

7.2 Trip Distribution/Assignment

Trip distribution is the process of determining traffic percentage splits on the regional and local roadway network from which traffic will access a project site. Trip distribution is dependent upon the land use characteristics of the project and upon the general location of other land uses to which project trips would originate or terminate.

Given that the hotel is proposed to be located adjacent to the existing Viejas Casino, existing traffic counts were used to deduce the traffic distribution percentages. It is important to note that employees working at the Viejas Indian Reservation are asked to use the East Willows Road interchange to offload traffic on West Willows Road, as reflected in the existing traffic counts. To be conservative, this study assumed all project trips from the west use the I-8/ West Willows Road interchange.

Figure 7–1 shows the project trip distribution percentages. ***Figure 7–2*** shows the weekday and Saturday project traffic volumes. ***Figure 7–3*** shows Existing + Project traffic volumes on a weekday and Saturday.

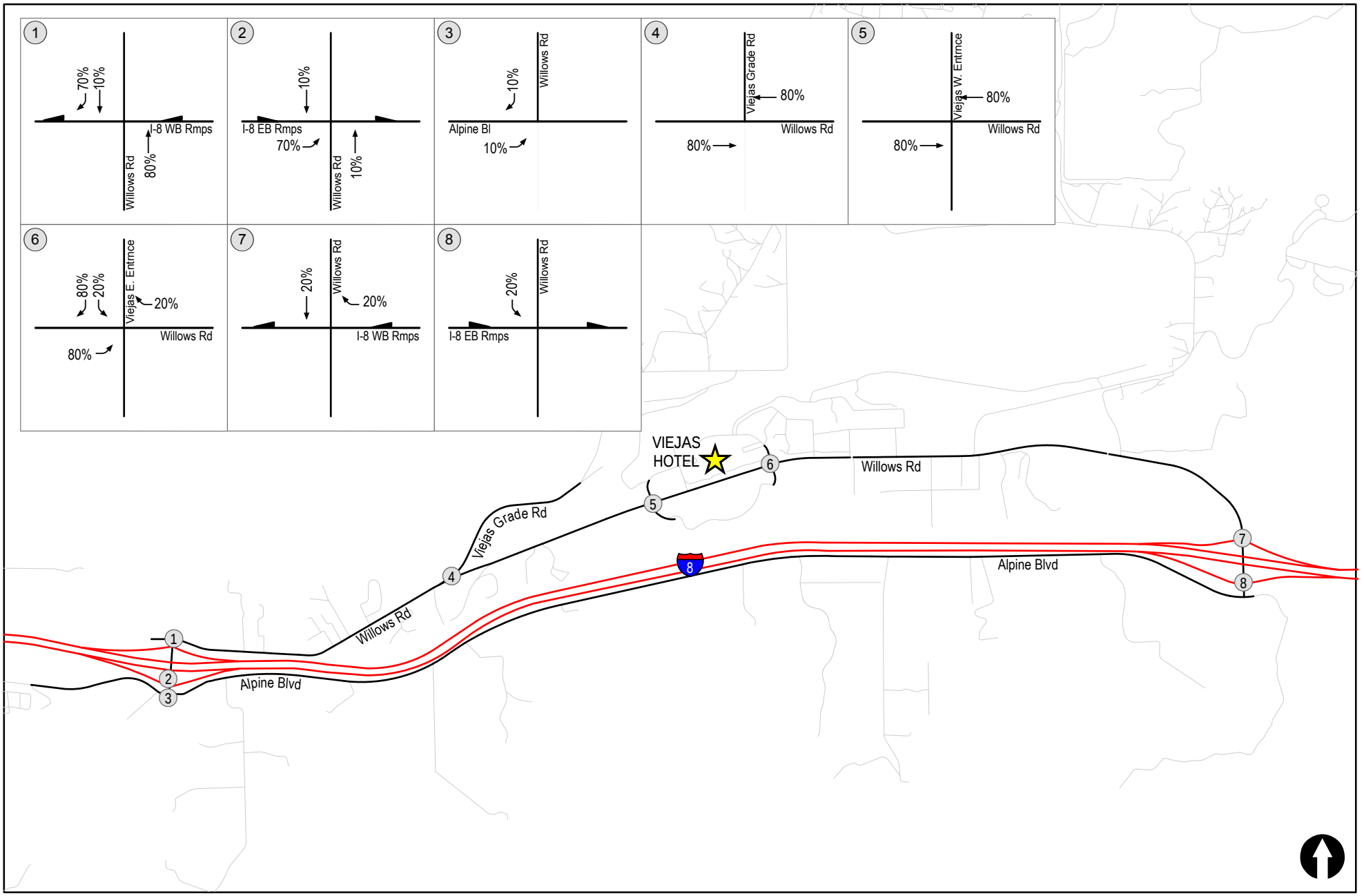

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Figure 7-1

Project Traffic Distribution

VIEJAS HOTEL SOUTH TOWER

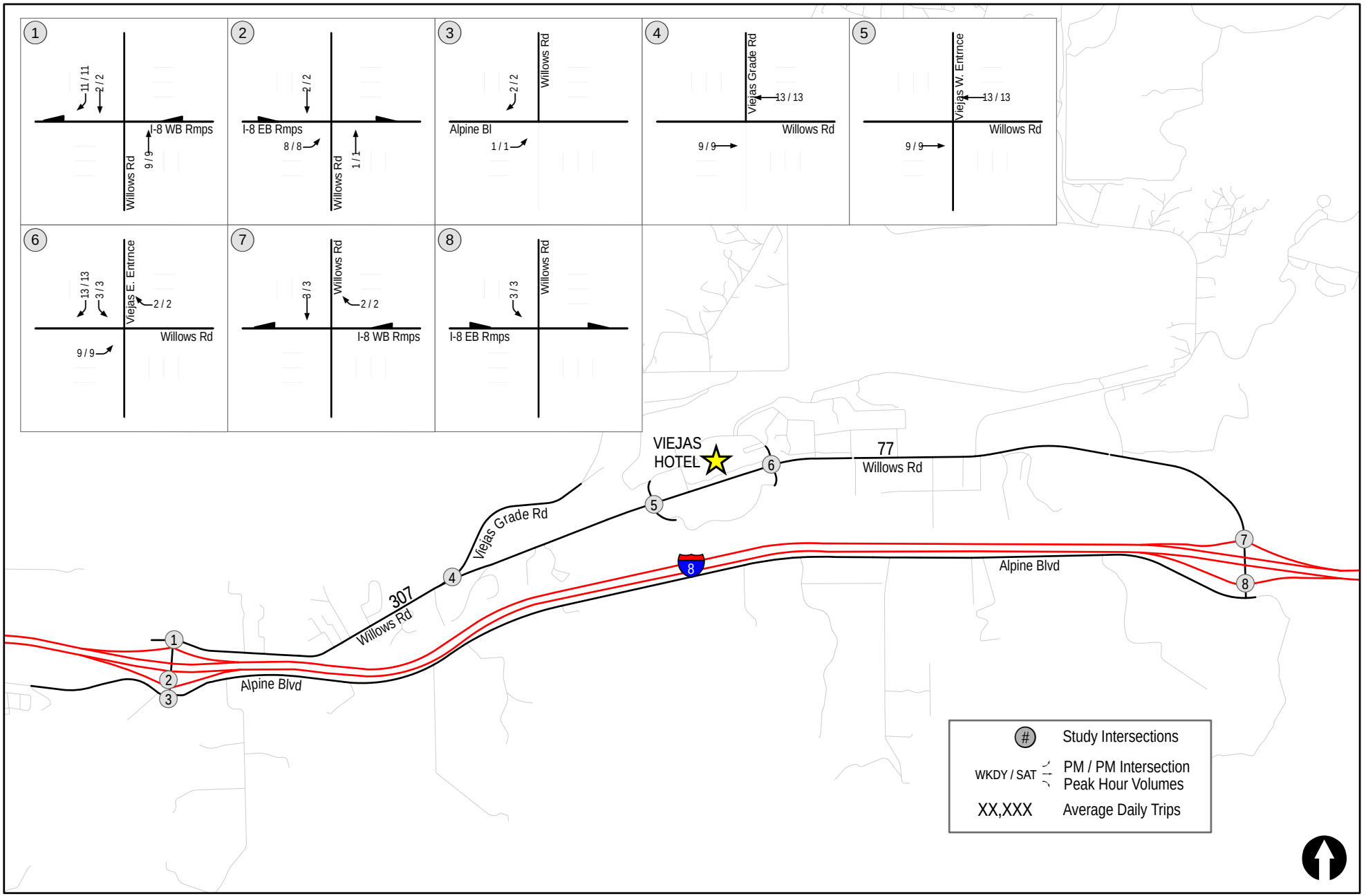

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Figure 7-2

Project Traffic Assignment

VIEJAS HOTEL SOUTH TOWER

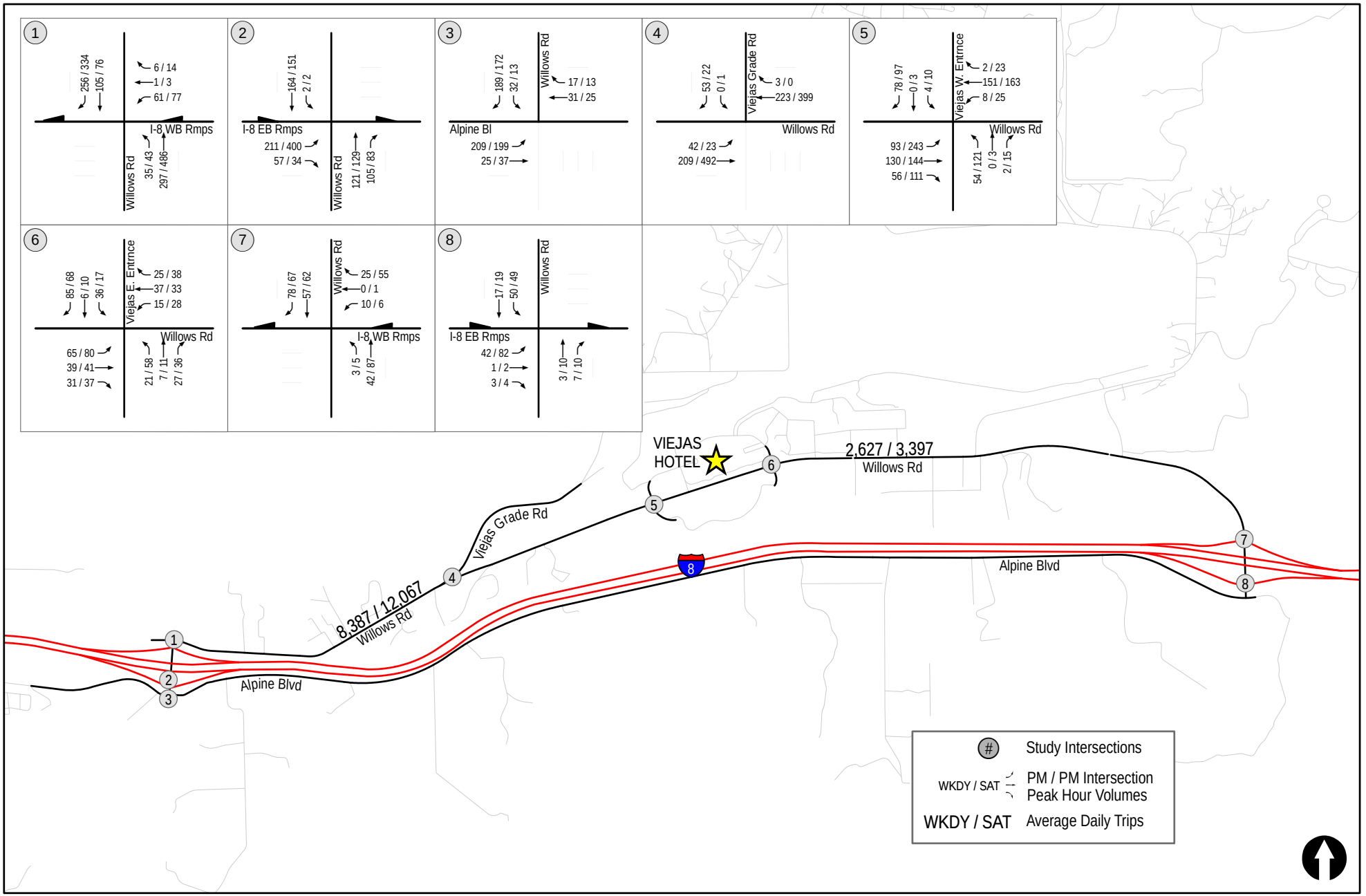

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Figure 7-3

Existing + Project Traffic Volumes

VIEJAS HOTEL SOUTH TOWER

8.0 CUMULATIVE PROJECTS

Cumulative projects are other projects in the study area that will add traffic to the local circulation system in the near future. LLG coordinated with the County of San Diego staff regarding the cumulative projects in the project study area. The following cumulative projects were included in the traffic study. The north hotel was built at the time the baseline traffic counts were conducted and therefore this project is not a cumulative project. ***Appendix E*** contains the cumulative project information.

1. Cronin Light Industrial
2. DGJM Self Storage
3. Alpine Regional Center Expansion
4. Alpine Convalescent
5. Victoria Village
6. Victoria Estates
7. Alpine High School
8. Alpine Library
9. Walker Health Clinic

8.1 Summary of Cumulative Projects Trips

Table 8–1 is a summary of the cumulative project trips generated in and around the project vicinity. This table shows that in total, nine (9) cumulative projects are identified, and are predicted to generate 5,955 ADT with 603 total PM peak hour trips in the community of Alpine when constructed. The majority of the cumulative projects are distant from the subject project study area; therefore only a small portion of cumulative trips will be added to the study area. The cumulative summary is based on weekday trip rates, but was also applied to the Saturday peak hour to provide a conservative assessment of weekend cumulative traffic.

Figure 8–1 shows the cumulative project locations and total cumulative project traffic volumes. ***Figure 8–2*** shows the Existing + Project + Cumulative projects traffic volumes on a weekday and Saturday.

TABLE 8–1
CUMULATIVE PROJECTS TRIP GENERATION SUMMARY

Sl. No.	Project Number	Project Name	Land Use	Intensity	Unit	Daily Trips	PM Trips	PM In	PM Out
1	350010-005	Cronin Light Industrial	Industrial Park	33.5	TSF	536	64	13	51
2	3500 03-073-01	DGJM Self Storage	Storage	119.78	TSF	240	22	11	11
3	3500 01-064-01	Alpine Regional Center Expansion	Specialty Retail	25	TSF	1,000	90	45	45
			Bank with Drive-Through	2	TSF	400	40	20	20
					Sub-Total	1,400	130	65	65
4	3300 64-018-04	Alpine Convalescent	Convalescent	29	Beds	87	6	2	4
5	3500 10-022	Victoria Village	Specialty Retail	5.525	TSF	221	20	10	10
			Condominiums	4	DU	32	3	2	1
					Sub-Total	253	23	12	11
6	3100 5431	Victoria Estates	Rural Estates	35	DU	420	42	29	13
7	N/A	Alpine High School	High School	1,100	Students	1,430	143	57	86
8	N/A	Library	Library	13	KSF	650	65	32	33
9	N/A	Walker Health Clinic	Dental and Standard Commercial Office	26.4	KSF	939	108	29	79
Total Cumulative Project Trips						**5,955**	**603**	**250**	**353**

General Note:

a. N/A – Not available.

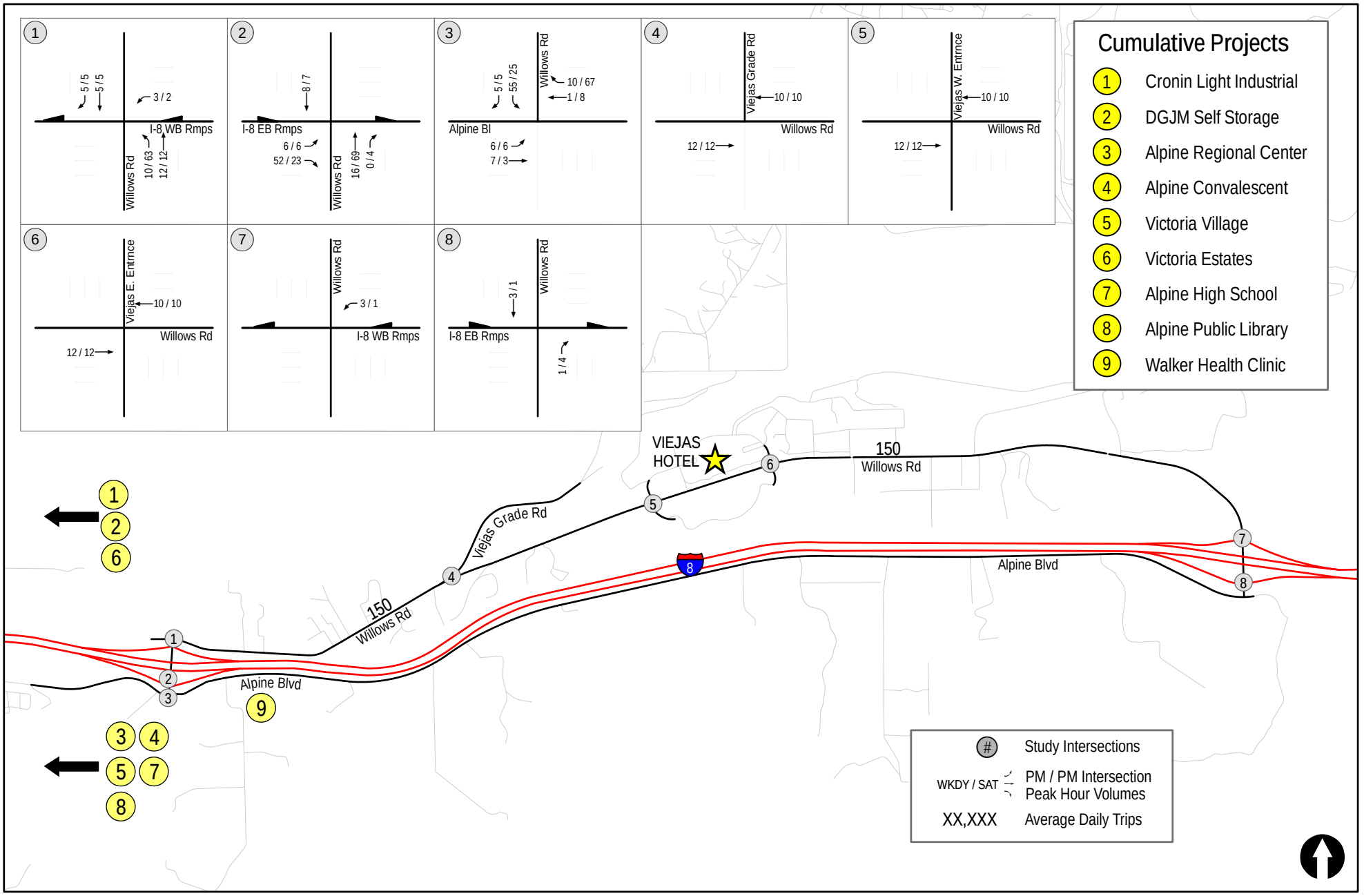

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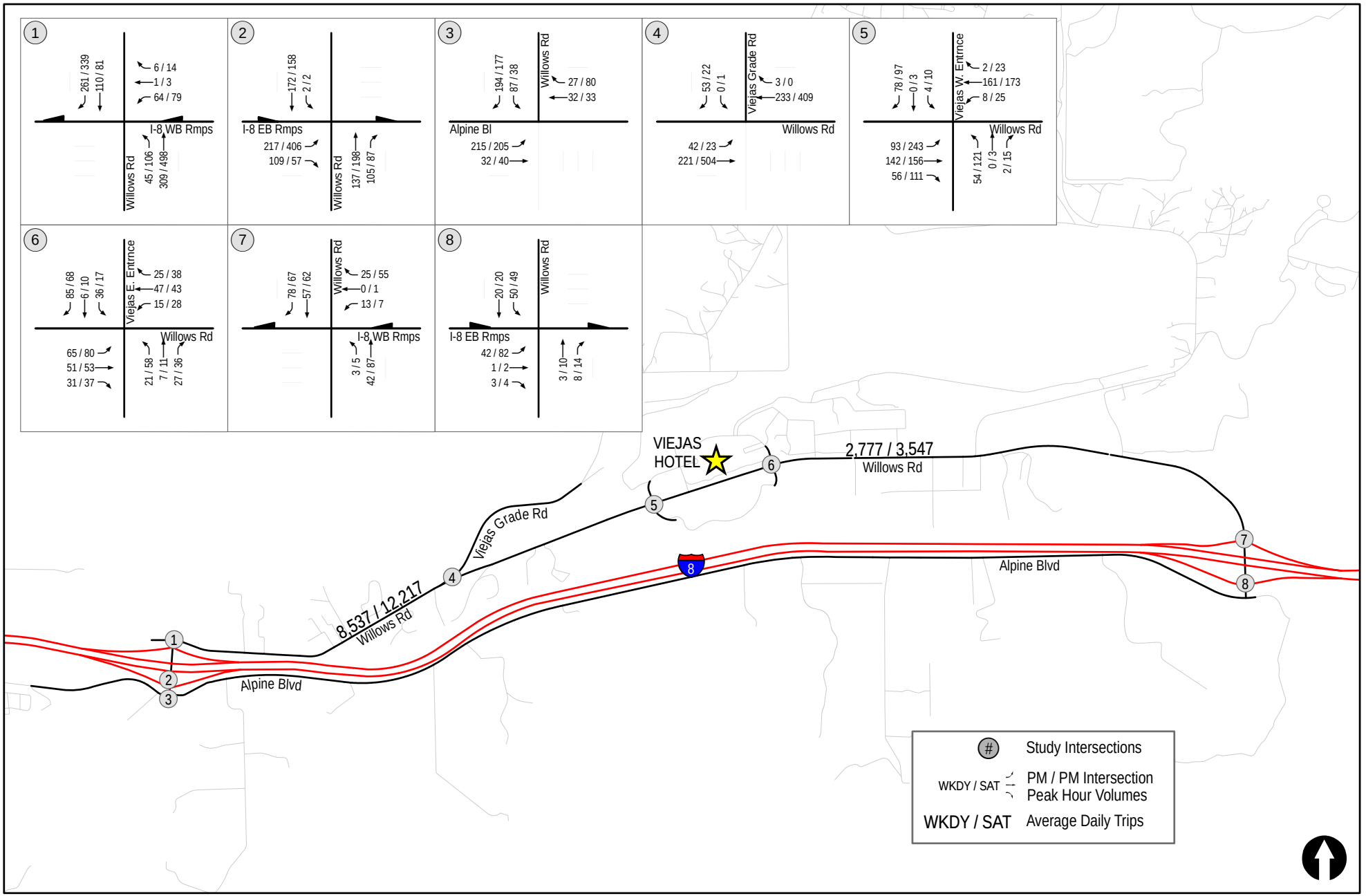
Figure 8-1

Cumulative Projects Traffic Volumes

VIEJAS HOTEL SOUTH TOWER



LINSCOTT LAW & GREENSPAN engineers

N:\2309\Figures
Date: 02/25/14

Figure 8-2

Existing + Project + Cumulative Projects Traffic Volumes

VIEJAS HOTEL SOUTH TOWER

9.0 ANALYSIS OF NEAR-TERM SCENARIOS

The following section discusses the intersection and street segment operations for the near-term scenarios: Existing + Project and Existing + Project + Cumulative Projects. A long-term analysis was not conducted as the proposed hotel is consistent with the long-range plan for the property and included in the long-term traffic model.

9.1 Existing + Project

9.1.1 *Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations for Existing + Project conditions on a weekday. With the addition of the proposed project traffic, all the study area intersections are calculated to continue to operate at acceptable LOS C or better. ***Appendix F*** contains the peak hour calculation sheets for the Existing + Project scenario.

Table 9–2 summarizes the peak hour intersection operations for Existing + Project conditions on a Saturday. With the addition of the proposed project traffic, all the study area intersections are calculated to continue to operate at acceptable LOS C or better.

9.1.2 *Street Segment Operations*

Table 9–3 summarizes the weekday street segment operations. With the addition of proposed project traffic, Willows Road is calculated to continue to operate at acceptable LOS D or better.

Table 9–4 summarizes the Saturday street segment operations. With the addition of proposed project traffic, Willows Road – West of Viejas Casino is calculated to continue to operate at LOS E. The proposed project on this segment adds 307 ADT and exceeds the County's allowable threshold of 200 ADT on a 2-lane road at LOS E. The significance of this project contribution is discussed later in *Section 9.3*.

9.2 Existing + Project + Cumulative Projects

9.2.1 *Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations for Existing + Project + Cumulative projects conditions on a weekday. With the addition of the proposed project and cumulative projects traffic, all the study area intersections are calculated to continue to operate at acceptable LOS C or better. ***Appendix G*** contains the peak hour calculation sheets for the Existing + Project + Cumulative projects scenario.

Table 9–2 summarizes the peak hour intersection operations for Existing + Project + Cumulative projects conditions on a Saturday. With the addition of the proposed project and cumulative projects traffic, all the study area intersections are calculated to operate at acceptable service levels of LOS D or better.

9.2.2 *Street Segment Operations*

Table 9–3 summarizes the weekday street segment operations. With the addition of proposed project and cumulative projects traffic, Willows Road is calculated to continue to operate at acceptable LOS D or better.

Table 9–4 summarizes the Saturday street segment operations. With the addition of proposed project and cumulative projects traffic, Willows Road – West of Viejas Casino is calculated to operate at LOS E. The proposed plus cumulative projects on this segment add 457 ADT and exceed the County's allowable threshold of 200 ADT on a 2-lane road at LOS E. The significance of this project contribution is discussed below.

9.3 Significant Impacts

9.3.1 *Intersections*

Based on the County's significance criteria, *no significant direct or cumulative intersection impacts were calculated on a weekday or Saturday.*

9.3.2 *Street Segments*

Based on the County's significance criteria, *no significant direct or cumulative street segment impacts are calculated on a weekday*.

While the County's ADT threshold for street segments on a Saturday has been exceeded, a significant impact requiring mitigation on Willows Road – West of the casino is not determined for the following reasons:

- The project is a low generating ancillary use to the Casino adding 307 ADT and 22/22 (AM/PM) peak hour trips on this segment.
- The impact occurs **only** on a Saturday. During peak commuter traffic, this segment is calculated to operate at LOS D or better.
- According to the County of San Diego General Plan Update Alpine Mobility Element Network, the street segment operations on this portion of Willows Road have been accepted at LOS F.
- The intersections adjacent to this segment (Willows Road/ I-8 WB ramps and Casino traffic signal) are calculated to operate at LOS D or better (LOS C on a weekday). Given the minimal side friction on Willows Road in this stretch, street segment operations may operate better than calculated.
- A portion of Willows Road along the casino frontage is currently built to 4-lanes, which helps in reducing congestion and improving overall street operations.

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS (WEEKDAY)

Intersection	Control Type	Existing		Existing + Project			Existing + Project + Cumulative Project			Significant Impact?
		Delay[a]	LOS[b]	Delay	LOS	Δ[c]	Delay	LOS	Δ	
1. Willows Road (West) / I-8 WB Ramps	TWSC[d]	15.8	C	16.2	C	0	17.4	C	10	No
2. Willows Road (West) / I-8 EB Ramps	TWSC	13.6	B	13.9	B	8	13.9	B	14	No
3. Willows Road (West) / Alpine Boulevard	TWSC	13.1	B	13.1	B	1	17.9	C	55	No
4. Willows Road / Viejas Grade Road	TWSC	9.8	A	9.9	A	0	10.0	A	0	No
5. Willows Road / West Viejas Casino Entrance	AWSC[e]	9.2	A	9.4	A	0	9.5	A	0	No
6. Willows Road / East Viejas Casino Entrance	AWSC	8.4	A	8.5	A	9	8.6	A	9	No
7. Willows Road (East) / I-8 WB Ramps	TWSC	8.9	A	8.9	A	0	8.9	A	3	No
8. Willows Road (East) / I-8 EB Ramps	TWSC	9.6	A	9.6	A	3	9.7	A	3	No

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes an increase in trips for the critical movement due to the project.
d. TWSC – Two-Way Stop Controlled intersection. Minor street left turn delay is reported.
e. AWSC – All-Way Stop Controlled intersection.

UNSIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

TABLE 9–2
NEAR-TERM INTERSECTION OPERATIONS (SATURDAY)

Intersection	Control Type	Existing		Existing + Project			Existing + Project + Cumulative Project			Significant Impact?
		Delay[a]	LOS[b]	Delay	LOS	Δ[c]	Delay	LOS	Δ	
1. Willows Road (West) / I-8 WB Ramps	TWSC[d]	22.8	C	23.5	C	0	34.4	D	63	No
2. Willows Road (West) / I-8 EB Ramps	TWSC	22.8	C	23.9	C	8	34.1	D	14	No
3. Willows Road (West) / Alpine Boulevard	TWSC	11.9	B	11.9	B	1	15.9	C	25	No
4. Willows Road / Viejas Grade Road	TWSC	11.3	B	11.4	B	0	11.5	B	0	No
5. Willows Road / West Viejas Casino Entrance	AWSC[e]	12.1	B	12.3	B	0	12.4	B	0	No
6. Willows Road / East Viejas Casino Entrance	AWSC	8.6	A	8.8	A	9	8.8	A	9	No
7. Willows Road (East) / I-8 WB Ramps	TWSC	9.1	A	9.1	A	0	9.1	A	1	No
8. Willows Road (East) / I-8 EB Ramps	TWSC	10.0	A	10.0	A	3	10.1	B	3	No

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes an increase in trips for the critical movement due to the project.
d. TWSC – Two-Way Stop Controlled intersection. Minor street left turn delay is reported.
e. AWSC – All-Way Stop Controlled intersection.

UNSIGNALIZED

DELAY/LOS THRESHOLDS

Delay	LOS
0.0 ≤ 10.0	A
10.1 to 15.0	B
15.1 to 25.0	C
25.1 to 35.0	D
35.1 to 50.0	E
≥ 50.1	F

TABLE 9–3
NEAR-TERM STREET SEGMENT OPERATIONS (WEEKDAY)

Street Segment	Classification	Existing Capacity (LOS E)[a]	Existing		Existing + Project			Existing + Project + Cumulative Projects			Significant Impact?
			ADT[b]	LOS[c]	ADT	LOS	Δ[d]	ADT	LOS	Δ	
Willow Road											
West of Viejas Casino	2-lane Rural Light Collector	16,200	8,080	D	8,387	D	307	8,537	D	457	No
East of Viejas Casino	2-lane Rural Light Collector	16,200	2,550	B	2,627	B	77	2,777	B	227	No

Footnotes:

a. Capacities based on the *County of San Diego Roadway Classification & LOS table* (See *Appendix C*).
b. Average Daily Traffic
c. Level of Service
d. Δ denotes a project-induced increase in the average daily traffic.

TABLE 9–4
NEAR-TERM STREET SEGMENT OPERATIONS (SATURDAY)

Street Segment	Classification	Existing Capacity (LOS E)[a]	Existing		Existing + Project			Existing + Project + Cumulative Projects			Significant Impact?
			ADT[b]	LOS[c]	ADT	LOS	Δ[d]	ADT	LOS	Δ	
Willow Road											
West of Viejas Casino	2-lane Rural Light Collector	16,200	11,760	**E**	12,067	**E**	307	12,217	**E**	457	No[e]
East of Viejas Casino	2-lane Rural Light Collector	16,200	3,320	B	3,397	B	77	3,547	B	227	No

Footnotes:

a. Capacities based on the *County of San Diego Roadway Classification & LOS table* (See *Appendix C*).
b. Average Daily Traffic
c. Level of Service
d. Δ denotes a project-induced increase in the average daily traffic.
e. See *Section 9.3.2* for discussion.

10.0 ANALYSIS OF LONG-TERM SCENARIOS

The following section discusses the street segment operations for the Long-Term scenario. A Supplemental Environmental Impact Report (SEIR) was prepared by RBF Consulting for the proposed Forest Conservation Initiative General Plan Amendment (FCI GPA). The proposed FCI GPA tiers from the current San Diego County General Plan and the General Plan Update Program EIR adopted on August 3, 2011. As part of the FCI GPA, various Community Plan and Subregional Plan Updates, Mobility Element Road Network Changes and San Diego County Zoning Ordinance Amendments were included in the traffic study in order to identify known issues and to ensure proper recommendations.

Table 10–1 summarizes the Long-Term street segment operations. As shown in *Table 10–1*, Willows Road – East and West of Viejas Casino is anticipated to operate at LOS F under the current General Plan Update Mobility Element Reclassification. However, with the implementation of the FCI GPA roadway reclassification, Willows Road – East and West of Viejas Casino is calculated to operate at LOS D.

The project would not be responsible for contributing to the future widening of Willows Road to Prime Arterial standards since the project does not cause a significant impact on Willows Road, the project is a commercial use within a portion of the Reservation designated for commercial uses, and the project is not part of the FCI GPA.

TABLE 10–1
LONG-TERM STREET SEGMENT OPERATIONS

Street Segment	Forecast ADT[a]	Existing			GPU EIR Reclassification			FCI GPA Reclassification		
		Classification[b]	Capacity (LOS E)[b]	LOS[c]	Classification	Capacity (LOS E)	LOS	Classification	Capacity (LOS E)	LOS
Willow Road										
West of Viejas Casino	47,736	2-lane Light Collector *No Median (2.2E)*	16,200	F	4-lane Major Road *with Intermittent Turn Lanes (4.1B)*	34,200	**F**	6-lane Prime Arterial *(6.2)*	57,000	D
East of Viejas Casino	46,656	2-lane Light Collector *No Median (2.2E)*	16,200	F	2-lane Light Collector *No Median (2.2E)*	16,200	**F**	6-lane Prime Arterial *(6.2)*	57,000	D

Footnotes:

a. Source: FCI GPA SEIR

b. Capacities based on the *County of San Diego Roadway Classification & LOS table* (See *Appendix C*).

c. Level of Service

11.0 ACCESS AND OTHER ISSUES

The following section discusses the project access, pedestrian circulation and a qualitative construction assessment.

11.1 Project Access

Access to the hotel is proposed via an existing driveway on Willows Road, east of the casino. This existing driveway is an all-way stop controlled intersection. Dedicated left-turn and through lanes are currently provided on Willows Road, thereby increasing overall intersection capacity. With the addition of project traffic, this driveway is expected to operate very well and provide adequate access to the project site requiring no modification.

11.2 Pedestrian Circulation

With the proposed hotel on the Viejas property, pedestrian activity will likely increase between the outlet center on the south side and the casino/ hotel on the north. The existing traffic signal on Willows Road fronting the casino includes a pedestrian crosswalk and push buttons. This signalized intersection and the dedicated pedestrian crosswalk would adequately serve the pedestrian interaction between the various uses on-site. No pedestrian circulation issues are identified; therefore, no modification is required.

11.3 Project Construction Review

Construction traffic relates to the traffic generated from construction vehicles, which consist primarily of heavy trucks, smaller construction trucks, and worker vehicles. Construction of the project is expected to begin on June 2014 and be completed by November 2015. The major activities include site work, construction of foundation, building structures and interior design.

The project proposes earthwork of approximately 30,000 cubic yards of fill. The project proposes to utilize the 30,000 cubic yards of soil that is currently available on-site and relocate to an appropriate area on the Viejas reservation.

An additional 120 truck trips are anticipated to remove demolition debris from the project site. This would occur over two or more weeks meaning a maximum of twelve (12) trucks a day would be added to the street system. This amount is less than two trips per hour and the trucks would use East Willows Road. Considering the low traffic volumes on Willows Road east of the casino, no significant traffic related off-site construction impacts are identified.

The duration of the construction traffic would be limited, as would the expected hours of operation. The analysis in *Section 9.0* shows acceptable LOS D or better operations during the PM commuter peak hour at the key study area intersections for both weekday and Saturday. Additionally, the Viejas reservation is proposing that all construction employees and workers be required to use the E. Willows Road interchange to off-load traffic from West Willows Road. Given the above, no construction impacts are anticipated.

It should be noted that construction permits from the County will be required for any work that is done within the County right-of-way; however, no such work is anticipated at this time.

12.0 AREA TRAFFIC IMPROVEMENTS

Viejas has worked with County of San Diego staff and the local community to implement several traffic related improvements in the last few years. The following is a list of those improvements:

- Implemented double yellow striping on West Willows Road.
- Conducted a speed survey on West Willows Road which resulted in an increase in the use of radar detection and enforcement.
- Realigned the West Willows Road/Viejas Grade Road intersection and implemented lighting and guardrails.
- Relocated the bus turnout on West Willows Road.
- Install guardrails along a portion of East Willows Road.
- Require all bus and shuttles oriented to/from the Casino to the use East Willows Road.
- Require all Casino employees to use East Willows Road and implement disciplinary action to those who violate.
- Implemented traffic control procedures during special events that direct the majority of patrons to East Willows Road.

13.0 SUMMARY OF SIGNIFICANT IMPACTS AND MITIGATION MEASURES

13.1 Roadway Segments

13.1.1 *Significant Impacts Prior to Mitigation*

Based on the County's significance criteria, *no significant direct or cumulative street segment impacts are calculated on a weekday*.

While the County's ADT threshold for street segments on a Saturday is expected to be slightly exceeded, a significant impact requiring mitigation on Willows Road – West of the casino is not determined as discussed in *Section 9.3.2*. Hence no mitigation measure is required.

13.2 Intersections

13.2.1 *Significant Impacts Prior to Mitigation*

Based on the County of San Diego significance criteria, no direct or cumulative intersection impacts were calculated on a weekday or Saturday. Therefore, no mitigation measure is required.

14.0 REFERENCES AND LIST OF PREPARERS AND ORGANIZATIONS CONTACTED

14.1 References

The following references were utilized in preparing this Traffic Impact Study.

1. County of San Diego Traffic Needs Assessment of Tribal Development Projects in the San Diego Region, March 2003.
2. SANDAG (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002.
3. County of San Diego Guidelines for Determining Significance—Transportation and Traffic, dated June 30, 2009.
4. County's Public Road Standards, March 3, 2010
5. County of San Diego Traffic Report Format & Content Requirements, dated June 30, 2009.
6. County of San Diego General Plan Update for Alpine Community
7. Highway Capacity Manual (HCM) 2010
8. Highway Capacity Manual (HCM) 2000

14.2 List of Preparers

1. John Boarman, P.E., Principal—Linscott, Law & Greenspan, Engineers
2. Renald Espiritu, Transportation Engineer I—Linscott, Law & Greenspan, Engineers

14.3 Organizations Contacted

1. County of San Diego, Department of Public Works Transportation Division

LINSCOTT
LAW &
GREENSPAN
engineers

TECHNICAL APPENDICES
VIEJAS HOTEL SOUTH TOWER

San Diego, California
February 27, 2014

LLG Ref. 3-14-2309

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APPENDIX A

INTERSECTION AND SEGMENT MANUAL COUNT SHEETS AND GROWTH RATE CALCULATIONS

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

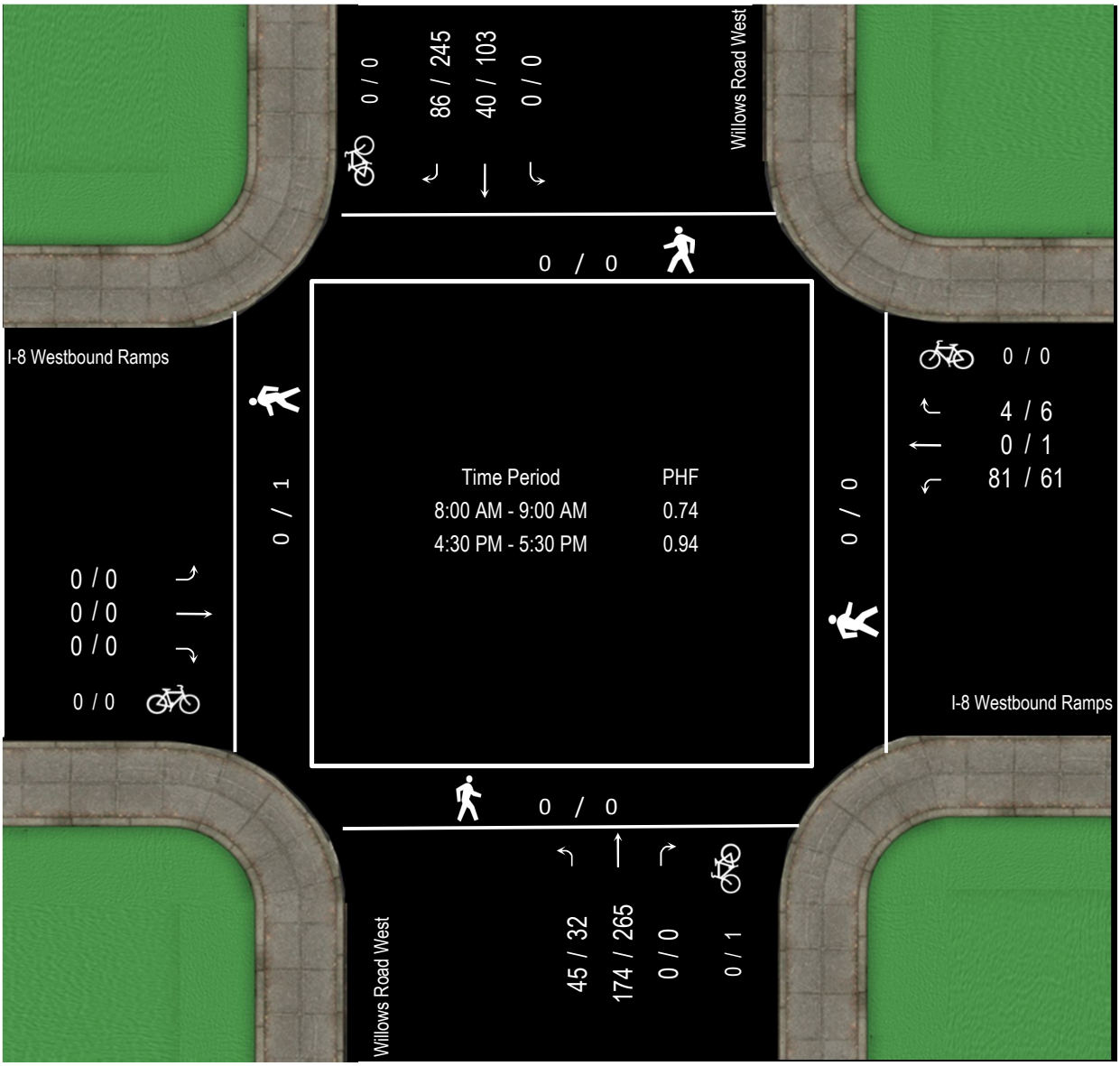
Location: I-8 Westbound Ramps @ Willows Road West

Date of Count: *Thursday, October 24, 2013*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *13-0111*



LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: I-8 Westbound Ramps @ Willows Road West

AM Period (7:00 AM - 9:00 AM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
7:00 AM	0	10	28	15	0	0	10	23	0	0	0	0	86
7:15 AM	0	8	20	11	0	0	13	26	0	0	0	0	78
7:30 AM	0	7	18	6	0	1	13	32	0	0	0	0	77
7:45 AM	0	12	15	11	0	1	13	65	0	0	0	0	117
8:00 AM	0	5	19	10	0	1	10	41	0	0	0	0	86
8:15 AM	0	9	20	13	0	2	14	26	0	0	0	0	84
8:30 AM	0	17	26	27	0	0	8	37	0	0	0	0	115
8:45 AM	0	9	21	31	0	1	13	70	0	0	0	0	145
Total	0	77	167	124	0	6	94	320	0	0	0	0	788

AM Intersection Peak Hour : **8:00 AM - 9:00 AM** Intersection PHF : **0.74**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	0	40	86	81	0	4	45	174	0	0	0	0	430
PHF	#####	0.59	0.83	0.65	#####	0.50	0.80	0.62	#####	#####	#####	#####	0.74
Movement PHF		0.73			0.66			0.66			#DIV/0!		0.74

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	0	14	60	13	0	2	7	61	0	0	0	0	157
4:15 PM	0	19	56	17	0	4	7	58	0	0	0	0	161
4:30 PM	0	27	74	14	0	0	9	65	0	0	0	0	189
4:45 PM	0	26	67	13	1	2	7	63	0	0	0	0	179
5:00 PM	0	25	54	13	0	3	10	67	0	0	0	0	172
5:15 PM	0	25	50	21	0	1	6	70	0	0	0	0	173
5:30 PM	0	23	50	18	0	2	9	76	0	0	0	0	178
5:45 PM	0	15	53	9	0	0	8	77	0	0	0	0	162
Total	0	174	464	118	1	14	63	537	0	0	0	0	1,371

PM Intersection Peak Hour : **4:30 PM - 5:30 PM** Intersection PHF : **0.94**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	0	103	245	61	1	6	32	265	0	0	0	0	713
PHF	#####	0.954	0.828	0.726	0.25	0.5	0.8	0.946	#####	#####	#####	#####	0.94
Movement PHF		0.86			0.77			0.96			#DIV/0!		0.94

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

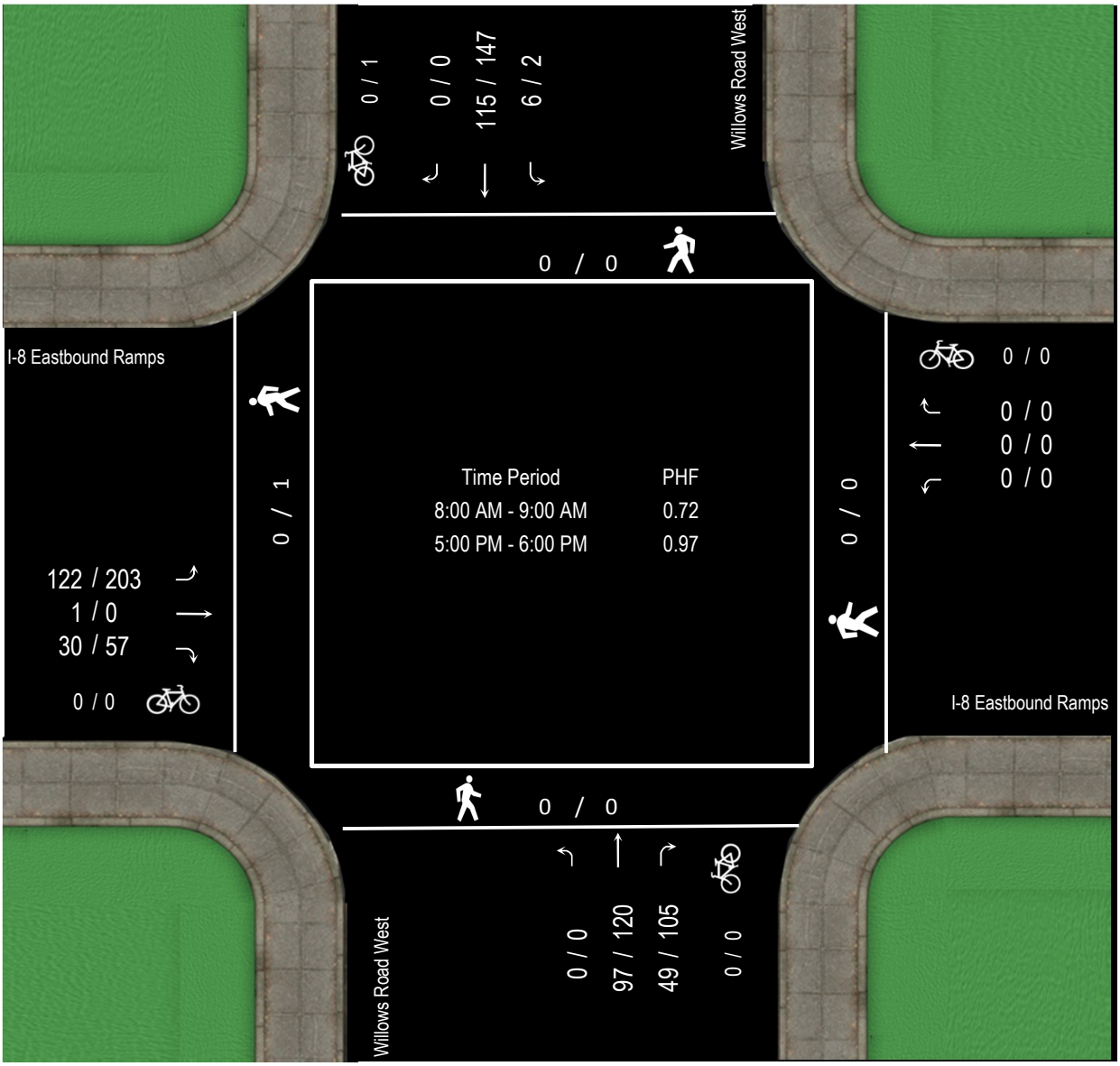
Location: I-8 Eastbound Ramps @ Willows Road West

Date of Count: *Thursday, October 24, 2013*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *13-0111*



LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: I-8 Eastbound Ramps @ Willows Road West

AM Period (7:00 AM - 9:00 AM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
7:00 AM	0	25	0	0	0	0	1	15	10	18	0	4	73
7:15 AM	2	17	0	0	0	0	0	19	10	20	0	6	74
7:30 AM	1	12	0	0	0	0	0	19	15	26	0	8	81
7:45 AM	0	23	0	0	0	0	0	31	3	47	0	7	111
8:00 AM	0	15	0	0	0	0	0	18	15	33	0	4	85
8:15 AM	1	21	0	0	0	0	0	21	9	19	1	4	76
8:30 AM	2	42	0	0	0	0	0	17	13	28	0	11	113
8:45 AM	3	37	0	0	0	0	0	41	12	42	0	11	146
Total	9	192	0	0	0	0	1	181	87	233	1	55	759

AM Intersection Peak Hour : **8:00 AM - 9:00 AM** Intersection PHF : **0.72**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	6	115	0	0	0	0	0	97	49	122	1	30	420
PHF	0.50	0.68	#####	#####	#####	#####	#####	0.59	0.82	0.73	0.25	0.68	0.72
Movement PHF		0.69			#DIV/0!			0.69			0.72		0.72

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	0	27	0	0	0	0	0	31	26	37	1	18	140
4:15 PM	2	34	0	0	0	0	0	24	25	41	0	23	149
4:30 PM	2	39	0	0	0	0	0	33	29	41	0	16	160
4:45 PM	1	38	0	0	0	0	0	26	22	44	0	24	155
5:00 PM	1	37	0	0	0	0	0	26	23	51	0	13	151
5:15 PM	1	45	0	0	0	0	0	27	24	49	0	18	164
5:30 PM	0	41	0	0	0	0	0	39	24	46	0	11	161
5:45 PM	0	24	0	0	0	0	0	28	34	57	0	15	158
Total	7	285	0	0	0	0	0	234	207	366	1	138	1,238

PM Intersection Peak Hour : **5:00 PM - 6:00 PM** Intersection PHF : **0.97**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	2	147	0	0	0	0	0	120	105	203	0	57	634
PHF	0.50	0.817	#####	#####	#####	#####	#####	0.769	0.772	0.89	#####	0.792	0.97
Movement PHF		0.81			#DIV/0!			0.89			0.90		0.97

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Alpine Boulevard @ Willows Road West

Date of Count: *Thursday, October 24, 2013*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *13-0111*

LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Alpine Boulevard @ Willows Road West

AM Period (7:00 AM - 9:00 AM)								
	Southbound		Westbound			Eastbound		
	Left	Right	Thru	Right		Left	Thru	TOTAL
7:00 AM	0	29	3	3		23	3	61
7:15 AM	2	21	6	8		21	4	62
7:30 AM	1	19	2	8		26	1	57
7:45 AM	1	29	7	4		30	0	71
8:00 AM	1	18	6	2		31	3	61
8:15 AM	1	24	9	6		24	2	66
8:30 AM	6	47	5	2		28	2	90
8:45 AM	3	45	4	10		43	3	108
Total	15	232	42	43		226	18	576

AM Intersection Peak Hour : **8:00 AM - 9:00 AM** Intersection PHF : **0.75**

	Southbound		Westbound			Eastbound		TOTAL
	Left	Right	Thru	Right		Left	Thru	
Volume	11	134	24	20		126	10	325
PHF	0.46	0.71	0.67	0.50		0.73	0.83	0.75
Movement PHF	0.68		0.73				0.74	0.75

PM Period (4:00 PM - 6:00 PM)								
	Southbound		Westbound			Eastbound		
	Left	Right	Thru	Right		Left	Thru	TOTAL
4:00 PM	7	38	9	4		53	2	113
4:15 PM	5	52	7	6		43	10	123
4:30 PM	9	46	6	2		60	7	130
4:45 PM	11	51	9	4		44	6	125
5:00 PM	8	42	5	4		45	6	110
5:15 PM	7	56	2	4		47	8	124
5:30 PM	2	50	9	2		61	6	130
5:45 PM	4	35	5	6		56	12	118
Total	53	370	52	32		409	57	973

PM Intersection Peak Hour : **4:00 PM - 5:00 PM** Intersection PHF : **0.94**

	Southbound		Westbound			Eastbound		TOTAL
	Left	Right	Thru	Right		Left	Thru	
Volume	32	187	31	16		200	25	491
PHF	0.73	0.899	0.861	0.667		0.833	0.625	0.94
Movement PHF	0.88		0.90				0.84	0.94

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

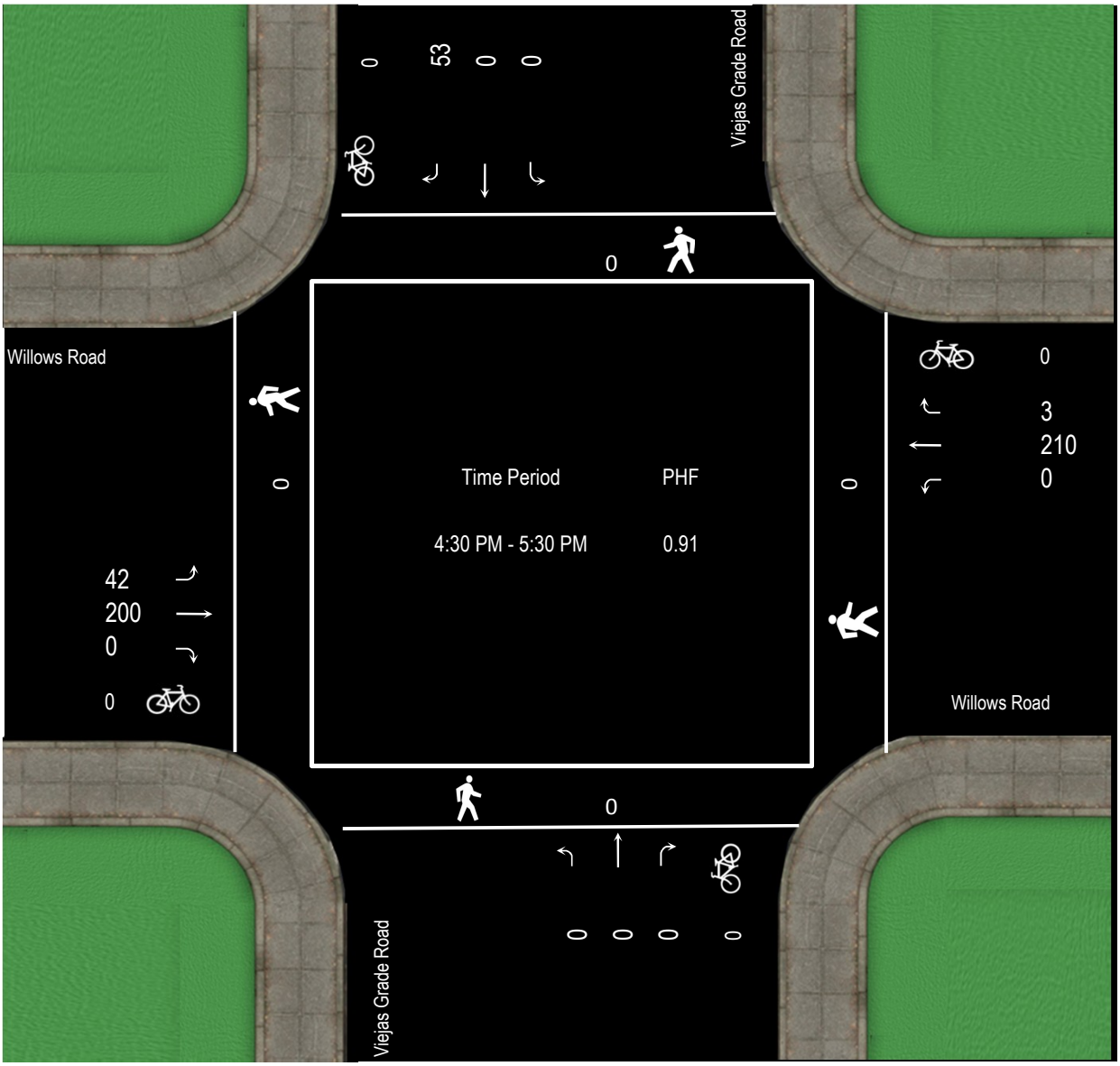
Location: Willows Road @ Viejas Grade Road

Date of Count: *Tuesday, January 28, 2014*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *14-0150*



LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Willows Road @ Viejas Grade Road

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	1	0	18	0	59	2	0	0	0	4	55	0	139
4:15 PM	0	0	6	0	59	0	0	0	0	6	45	0	116
4:30 PM	0	0	11	0	52	0	0	0	0	18	50	0	131
4:45 PM	0	0	7	0	46	0	0	0	0	8	46	0	107
5:00 PM	0	0	23	0	47	1	0	0	0	8	51	0	130
5:15 PM	0	0	12	0	65	2	0	0	0	8	53	0	140
5:30 PM	1	0	3	0	42	1	0	0	0	7	43	0	97
5:45 PM	0	0	7	0	38	1	0	0	0	4	47	0	97
Total	2	0	87	0	408	7	0	0	0	63	390	0	957

PM Intersection Peak Hour : **4:30 PM - 5:30 PM** Intersection PHF : **0.91**

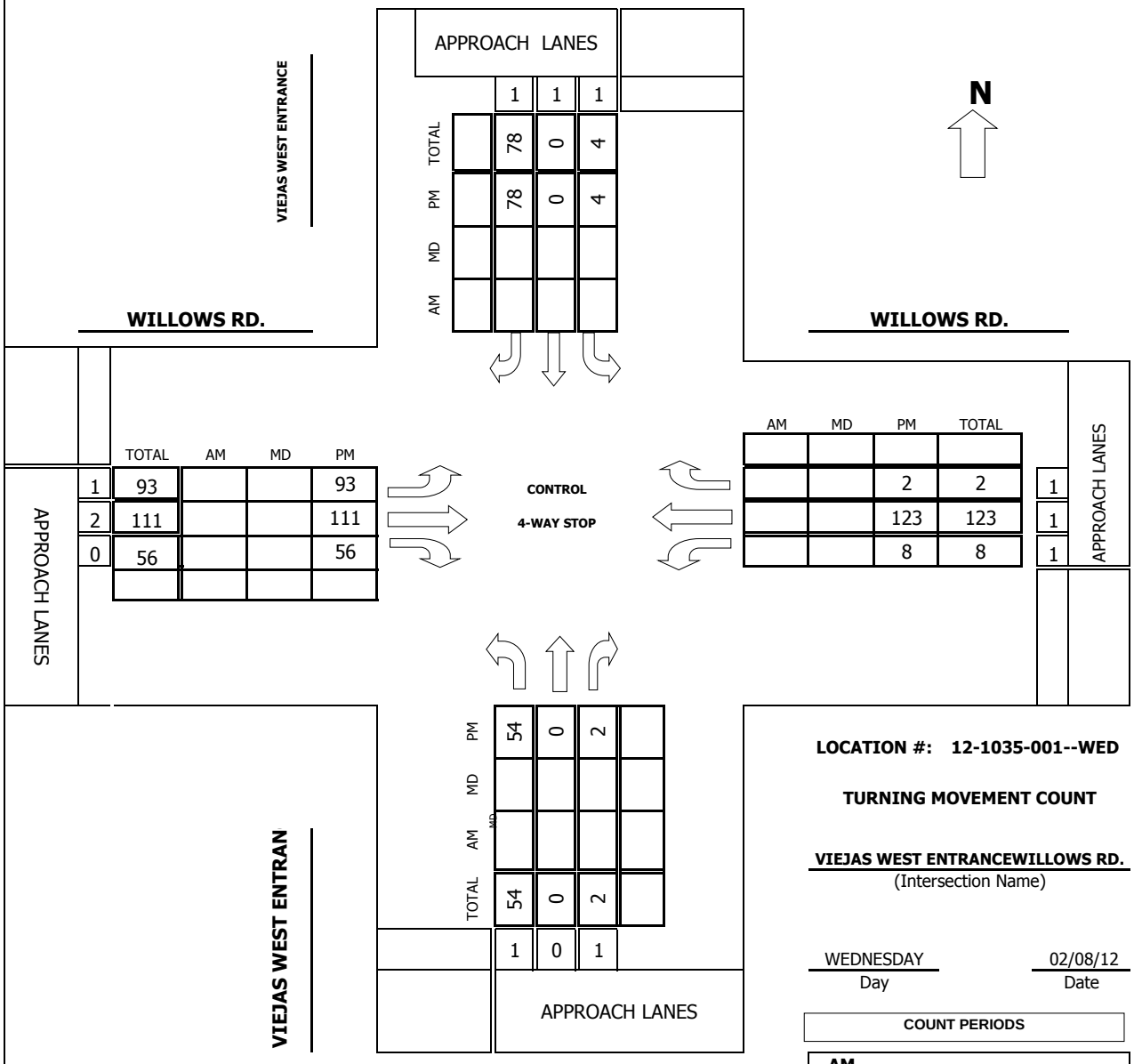
	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	0	0	53	0	210	3	0	0	0	42	200	0	508
PHF	#####	#####	0.576	#####	0.808	0.375	#####	#####	#####	0.583	0.943	#####	0.91
Movement PHF		0.58			0.79			#DIV/0!			0.89		0.91

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 12-1035-001--WED

TMC SUMMARY OF VIEJAS WEST ENTRANCEWILLOWS RD.



LOCATION #: 12-1035-001--WED

TURNING MOVEMENT COUNT

VIEJAS WEST ENTRANCEWILLOWS RD.
(Intersection Name)

WEDNESDAY
Day

02/08/12
Date

COUNT PERIODS

AM	
NOON	
PM	4:00 PM - 6:00 PM

AM PEAK HOUR _____

NOON PEAK HOUR _____

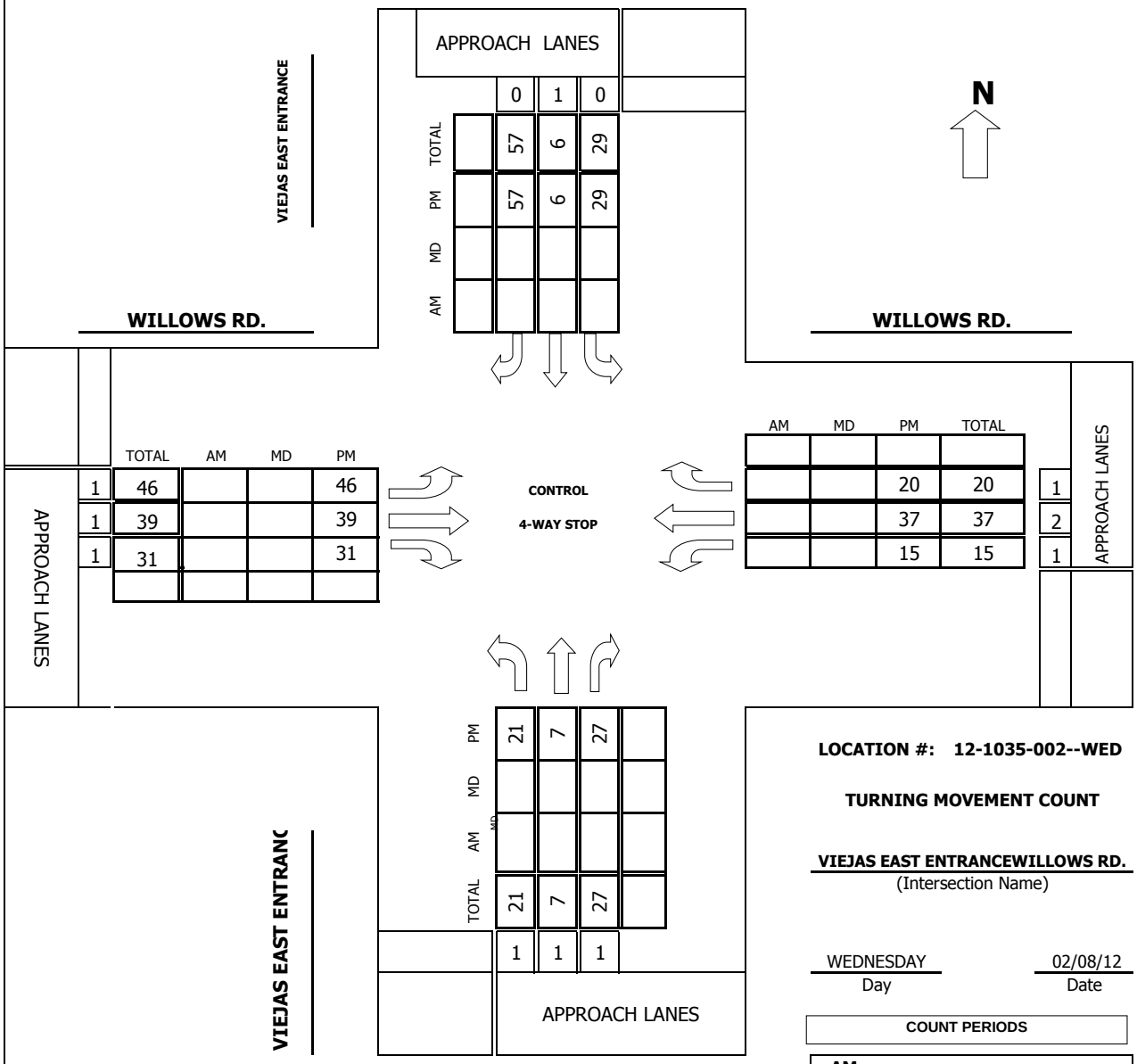
PM PEAK HOUR 400 PM

Intersection Turning Movement
Prepared by:

FIELD DATA SERVICES OF ARIZONA, INC.
520.316.6745

Project #: 12-1035-002--WED

TMC SUMMARY OF VIEJAS EAST ENTRANCEWILLOWS RD.



LOCATION #: 12-1035-002--WED

TURNING MOVEMENT COUNT

VIEJAS EAST ENTRANCEWILLOWS RD.
(Intersection Name)

WEDNESDAY
Day

02/08/12
Date

COUNT PERIODS

AM	
NOON	
PM	4:00 PM - 6:00 PM

AM PEAK HOUR _____

NOON PEAK HOUR _____

PM PEAK HOUR 400 PM

LINSCOTT LAW & GREENSPAN engineers

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

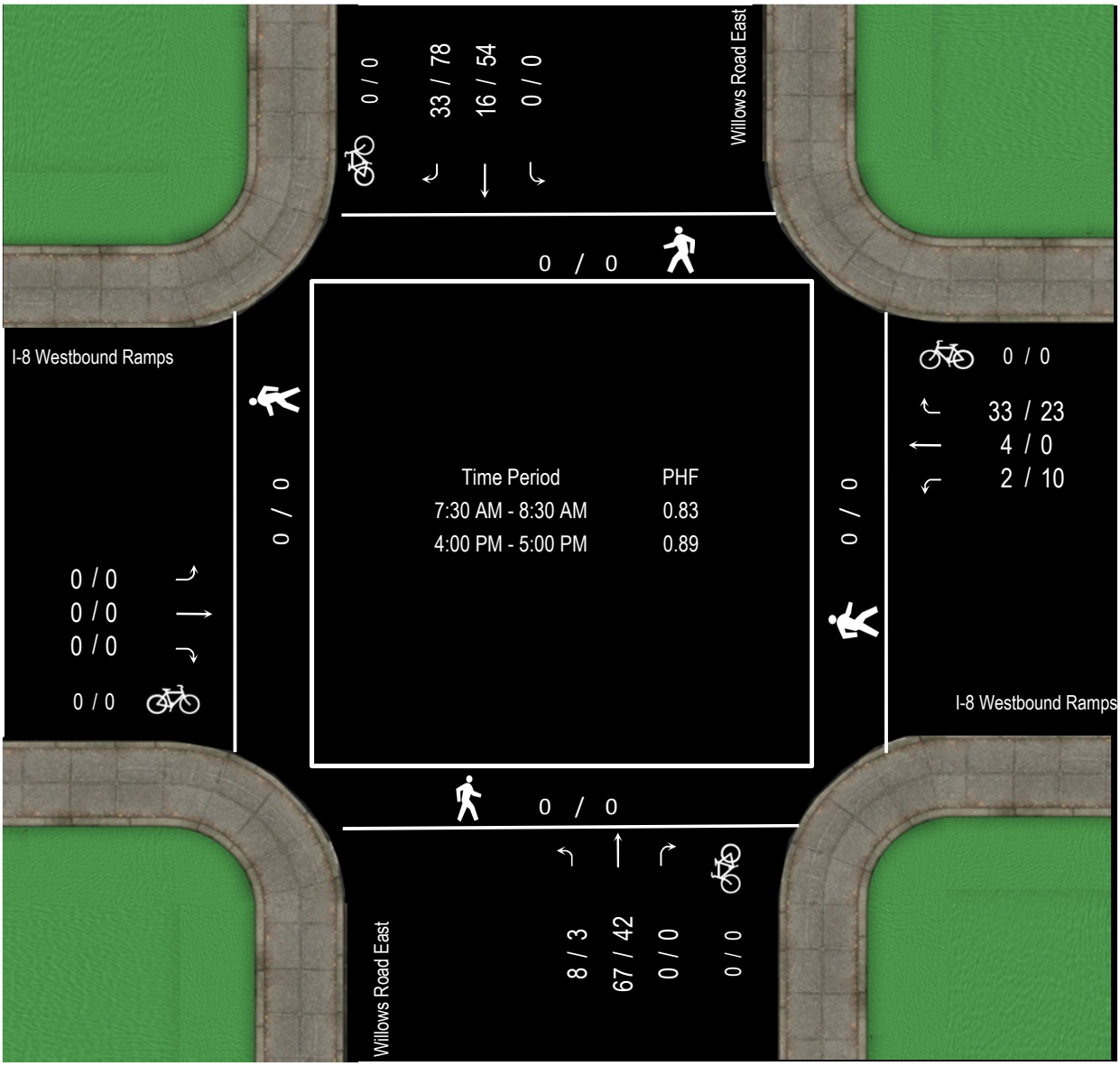
Location: I-8 Westbound Ramps @ Willows Road East

Date of Count: *Thursday, October 24, 2013*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *13-0111*



LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: I-8 Westbound Ramps @ Willows Road East

AM Period (7:00 AM - 9:00 AM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
7:00 AM	0	3	9	2	0	2	1	13	0	0	0	0	30
7:15 AM	0	3	3	0	0	1	2	16	0	0	0	0	25
7:30 AM	0	0	6	0	0	11	1	22	0	0	0	0	40
7:45 AM	0	2	7	1	2	9	3	25	0	0	0	0	49
8:00 AM	0	9	10	1	2	6	2	7	0	0	0	0	37
8:15 AM	0	5	10	0	0	7	2	13	0	0	0	0	37
8:30 AM	0	3	8	1	0	6	1	19	0	0	0	0	38
8:45 AM	0	3	5	3	0	3	0	22	0	0	0	0	36
Total	0	28	58	8	4	45	12	137	0	0	0	0	292

AM Intersection Peak Hour : **7:30 AM - 8:30 AM** Intersection PHF : **0.83**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	0	16	33	2	4	33	8	67	0	0	0	0	163
PHF	#####	0.44	0.83	0.50	0.50	0.75	0.67	0.67	#####	#####	#####	#####	0.83
Movement PHF		0.64			0.81			0.67			#DIV/0!		0.83

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	0	18	25	3	0	4	0	9	0	0	0	0	59
4:15 PM	0	15	26	2	0	5	1	10	0	0	0	0	59
4:30 PM	0	13	15	1	0	8	0	9	0	0	0	0	46
4:45 PM	0	8	12	4	0	6	2	14	0	0	0	0	46
5:00 PM	0	7	26	0	0	10	0	11	0	0	0	0	54
5:15 PM	0	10	20	0	1	8	1	16	0	0	0	0	56
5:30 PM	0	9	10	1	0	8	1	22	0	0	0	0	51
5:45 PM	0	8	10	1	0	4	0	9	0	0	0	0	32
Total	0	88	144	12	1	53	5	100	0	0	0	0	403

PM Intersection Peak Hour : **4:00 PM - 5:00 PM** Intersection PHF : **0.89**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	0	54	78	10	0	23	3	42	0	0	0	0	210
PHF	#####	0.75	0.75	0.625	#####	0.719	0.375	0.75	#####	#####	#####	#####	0.89
Movement PHF		0.77			0.83			0.70			#DIV/0!		0.89

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

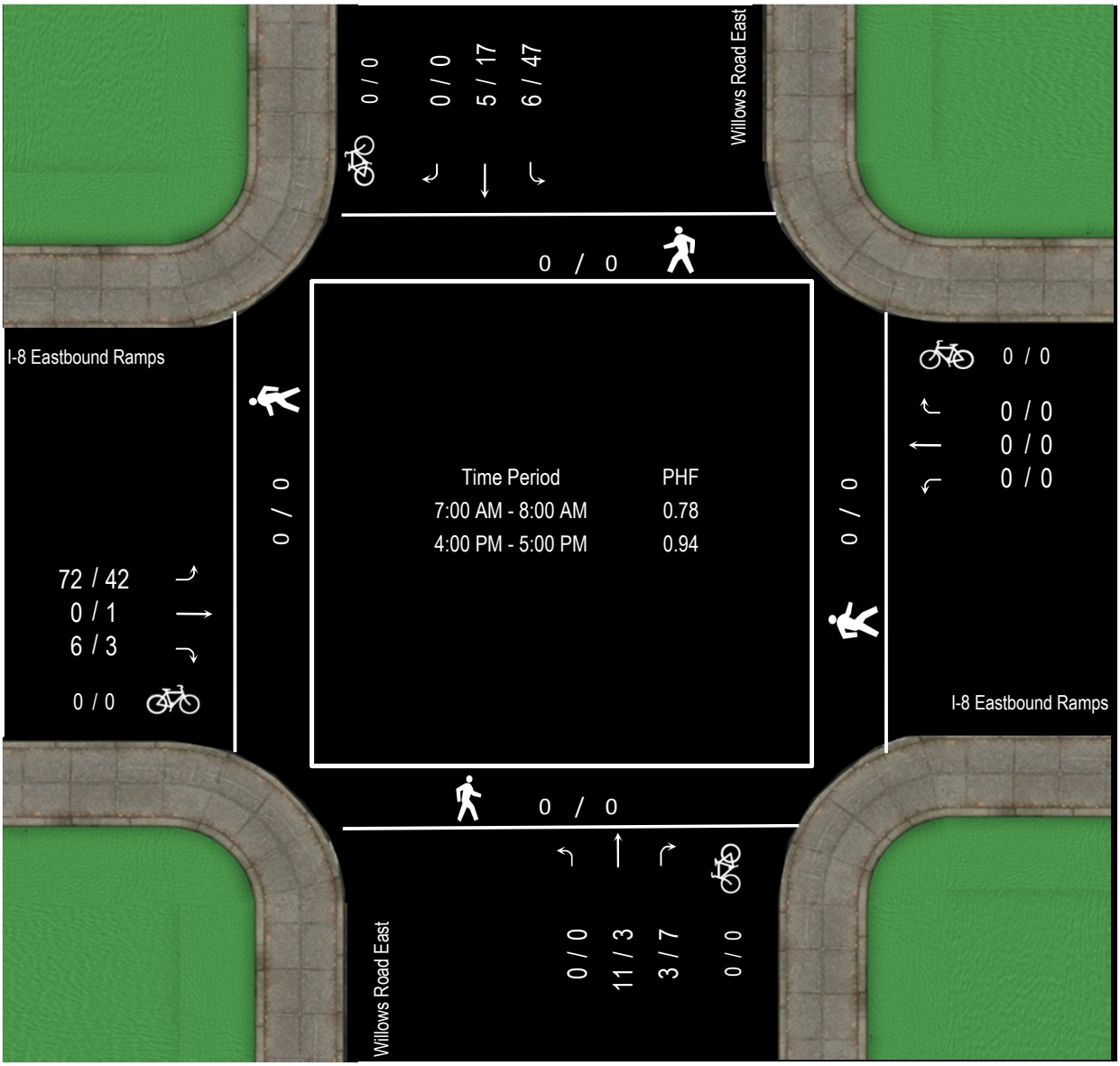
Location: I-8 Eastbound Ramps @ Willows Road East

Date of Count: *Thursday, October 24, 2013*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *13-0111*



LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: I-8 Eastbound Ramps @ Willows Road East

AM Period (7:00 AM - 9:00 AM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
7:00 AM	1	4	0	0	0	0	0	3	2	11	0	2	23
7:15 AM	2	1	0	0	0	0	0	3	1	15	0	1	23
7:30 AM	1	-1	0	0	0	0	0	2	0	21	0	1	24
7:45 AM	2	1	0	0	0	0	0	3	0	25	0	2	33
8:00 AM	5	5	0	0	0	0	0	2	0	7	0	0	19
8:15 AM	3	2	0	0	0	0	0	2	1	13	0	0	21
8:30 AM	3	1	0	0	0	0	0	2	1	18	0	1	26
8:45 AM	3	3	0	0	0	0	0	1	2	21	0	0	30
Total	20	16	0	0	0	0	0	18	7	131	0	7	199

AM Intersection Peak Hour : **7:00 AM - 8:00 AM** Intersection PHF : **0.78**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	6	5	0	0	0	0	0	11	3	72	0	6	103
PHF	0.75	0.31	#####	#####	#####	#####	#####	0.92	0.38	0.72	#####	0.75	0.78
Movement PHF		0.55			#DIV/0!			0.70			0.72		0.78

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	16	5	0	0	0	0	0	0	1	9	0	0	31
4:15 PM	13	4	0	0	0	0	0	0	3	11	0	1	32
4:30 PM	11	3	0	0	0	0	0	1	2	8	0	0	25
4:45 PM	7	5	0	0	0	0	0	2	1	14	1	2	32
5:00 PM	6	1	0	0	0	0	0	1	0	10	0	1	19
5:15 PM	7	3	0	0	0	0	0	3	1	14	0	1	29
5:30 PM	9	1	0	0	0	0	0	2	4	21	0	2	39
5:45 PM	7	2	0	0	0	0	0	2	1	7	0	1	20
Total	76	24	0	0	0	0	0	11	13	94	1	8	227

PM Intersection Peak Hour : **4:00 PM - 5:00 PM** Intersection PHF : **0.94**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	47	17	0	0	0	0	0	3	7	42	1	3	120
PHF	0.73	0.85	#####	#####	#####	#####	#####	0.375	0.583	0.75	0.25	0.375	0.94
Movement PHF		0.76			#DIV/0!			0.83			0.68		0.94

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

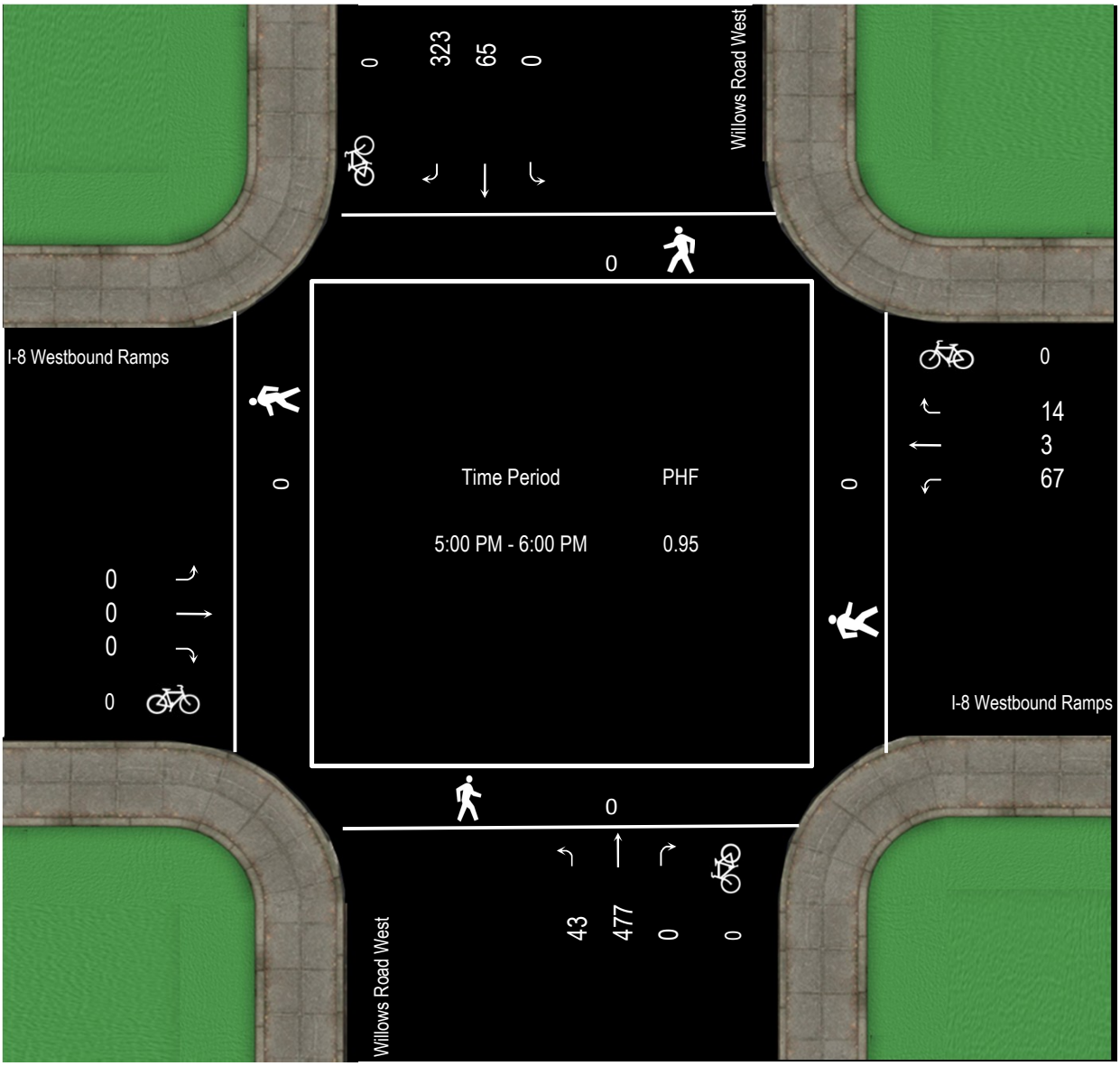
Location: I-8 Westbound Ramps @ Willows Road West

Date of Count: *Saturday, January 25, 2014*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *14-0150*



LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: I-8 Westbound Ramps @ Willows Road West

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	0	32	74	9	0	3	6	89	0	0	0	0	213
4:15 PM	0	21	72	20	1	3	5	94	0	0	0	0	216
4:30 PM	0	26	87	13	0	3	9	116	0	0	0	0	254
4:45 PM	0	11	66	17	0	1	6	126	0	0	0	0	227
5:00 PM	0	22	89	20	1	1	13	101	0	0	0	0	247
5:15 PM	0	23	87	18	2	3	12	115	0	0	0	0	260
5:30 PM	0	11	84	11	0	5	11	121	0	0	0	0	243
5:45 PM	0	9	63	18	0	5	7	140	0	0	0	0	242
Total	0	155	622	126	4	24	69	902	0	0	0	0	1,902

PM Intersection Peak Hour : **5:00 PM - 6:00 PM** Intersection PHF : **0.95**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	0	65	323	67	3	14	43	477	0	0	0	0	992
PHF	#####	0.707	0.907	0.838	0.375	0.7	0.827	0.852	#####	#####	#####	#####	0.95
Movement PHF		0.87			0.91			0.88			#DIV/0!		0.95

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

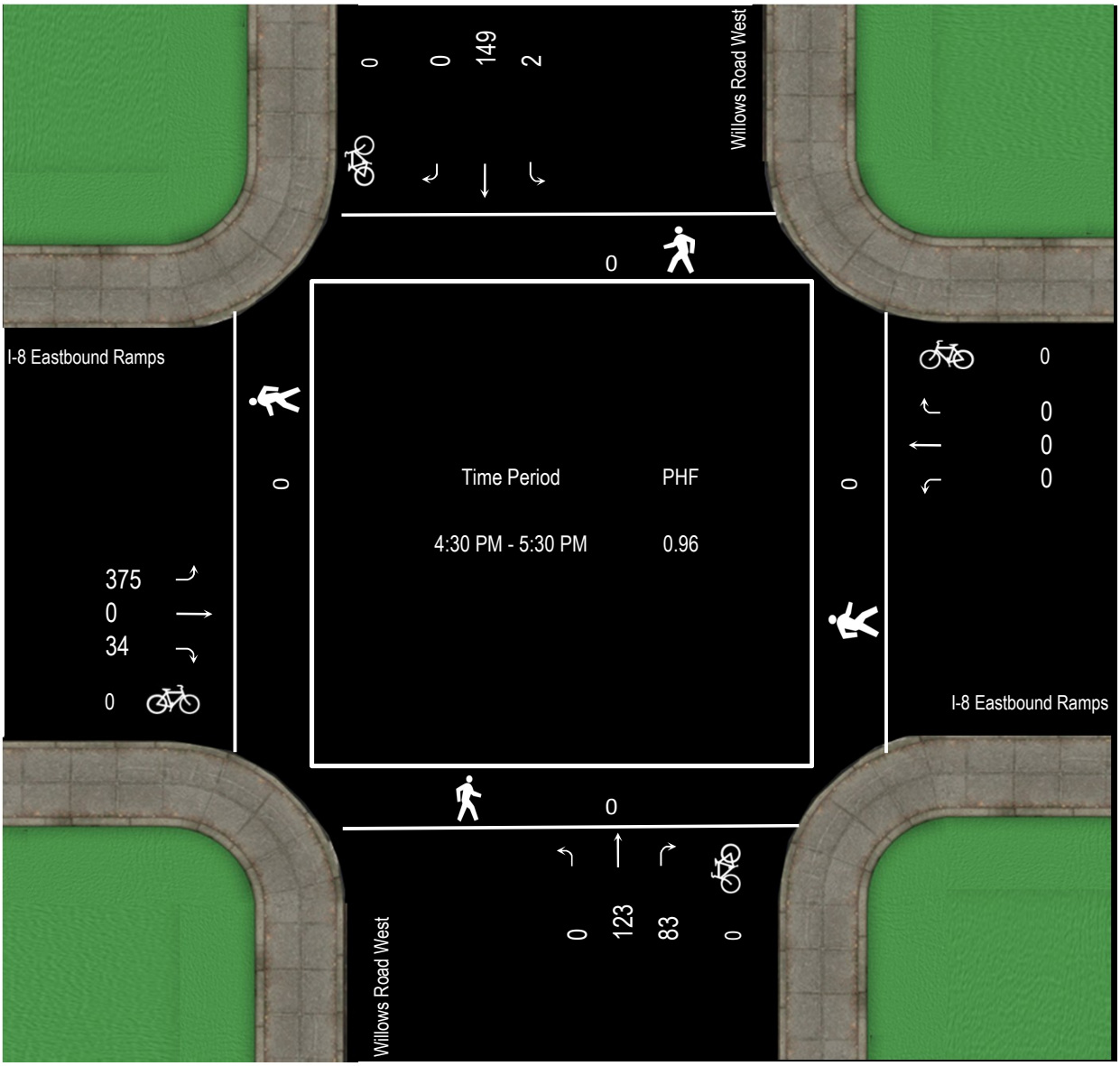
Location: I-8 Eastbound Ramps @ Willows Road West

Date of Count: *Saturday, January 25, 2014*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *14-0150*



LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: I-8 Eastbound Ramps @ Willows Road West

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	1	40	0	0	0	0	0	21	9	74	0	13	158
4:15 PM	0	40	0	0	0	0	0	12	16	87	0	16	171
4:30 PM	0	40	0	0	0	0	0	34	29	91	0	6	200
4:45 PM	0	27	0	0	0	0	0	29	24	103	0	11	194
5:00 PM	2	40	0	0	0	0	0	30	15	84	0	10	181
5:15 PM	0	42	0	0	0	0	0	30	15	97	0	7	191
5:30 PM	0	24	0	0	0	0	0	27	16	105	0	10	182
5:45 PM	1	25	0	0	0	0	0	26	19	121	0	5	197
Total	4	278	0	0	0	0	0	209	143	762	0	78	1,474

PM Intersection Peak Hour : **4:30 PM - 5:30 PM** Intersection PHF : **0.96**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	2	149	0	0	0	0	0	123	83	375	0	34	766
PHF	0.25	0.887	#####	#####	#####	#####	#####	0.904	0.716	0.91	#####	0.773	0.96
Movement PHF		0.90			#DIV/0!			0.82			0.90		0.96

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

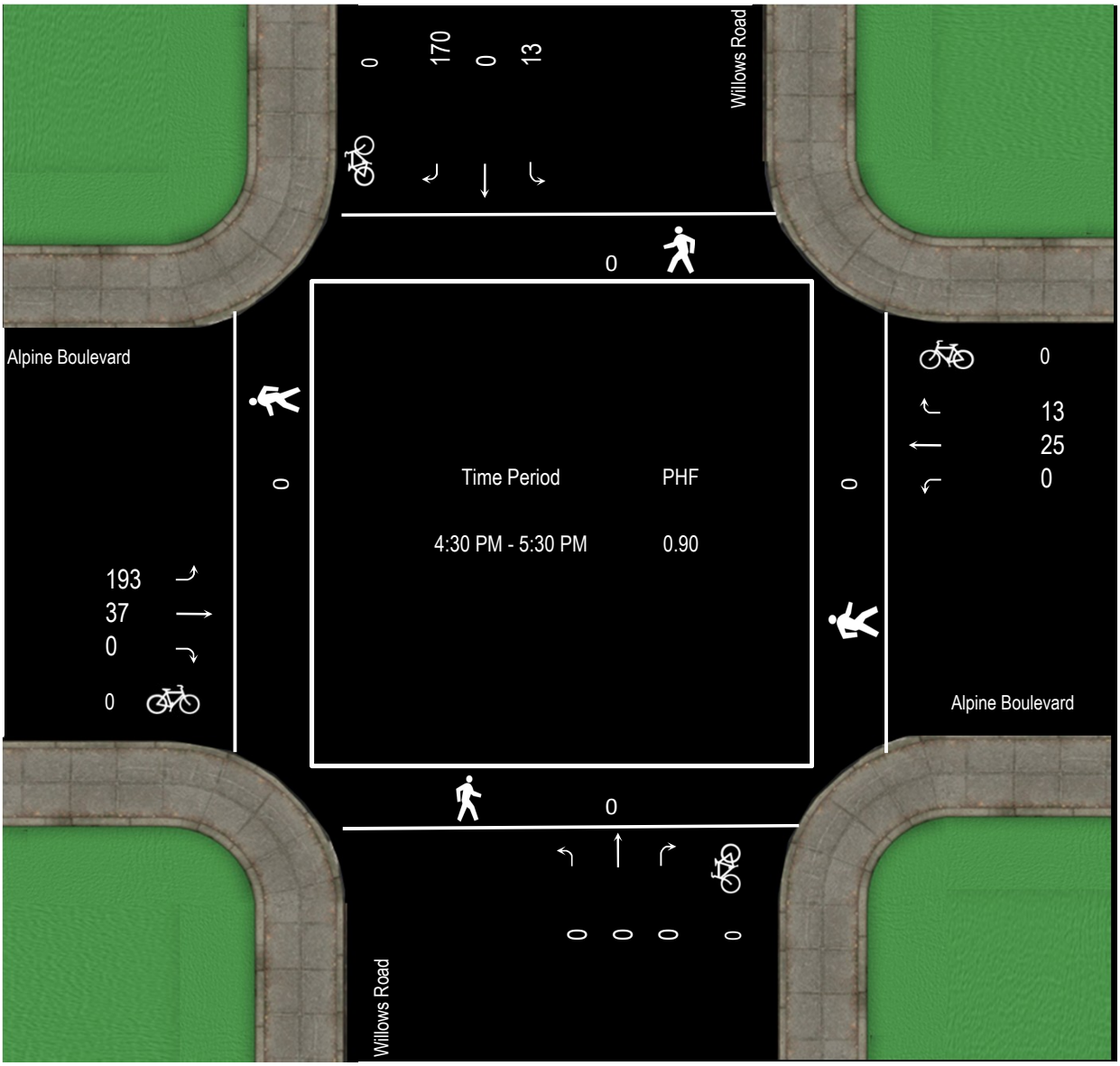
Location: Alpine Boulevard @ Willows Road

Date of Count: *Saturday, January 25, 2014*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *14-0150*



LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Alpine Boulevard @ Willows Road

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	7	0	46	0	5	1	0	0	0	29	7	0	95
4:15 PM	8	0	48	0	13	2	0	0	0	26	7	0	104
4:30 PM	2	0	44	0	6	3	0	0	0	60	10	0	125
4:45 PM	5	0	33	0	3	1	0	0	0	52	7	0	101
5:00 PM	5	0	45	0	10	3	0	0	0	42	11	0	116
5:15 PM	1	0	48	0	6	6	0	0	0	39	9	0	109
5:30 PM	6	0	28	0	5	0	0	0	0	43	9	0	91
5:45 PM	4	0	26	0	5	1	0	0	0	44	8	0	88
Total	38	0	318	0	53	17	0	0	0	335	68	0	829

PM Intersection Peak Hour : **4:30 PM - 5:30 PM** Intersection PHF : **0.90**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	13	0	170	0	25	13	0	0	0	193	37	0	451
PHF	0.65	#####	0.885	#####	0.625	0.542	#####	#####	#####	0.804	0.841	#####	0.90
Movement PHF		0.92			0.73			#DIV/0!			0.82		0.90

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

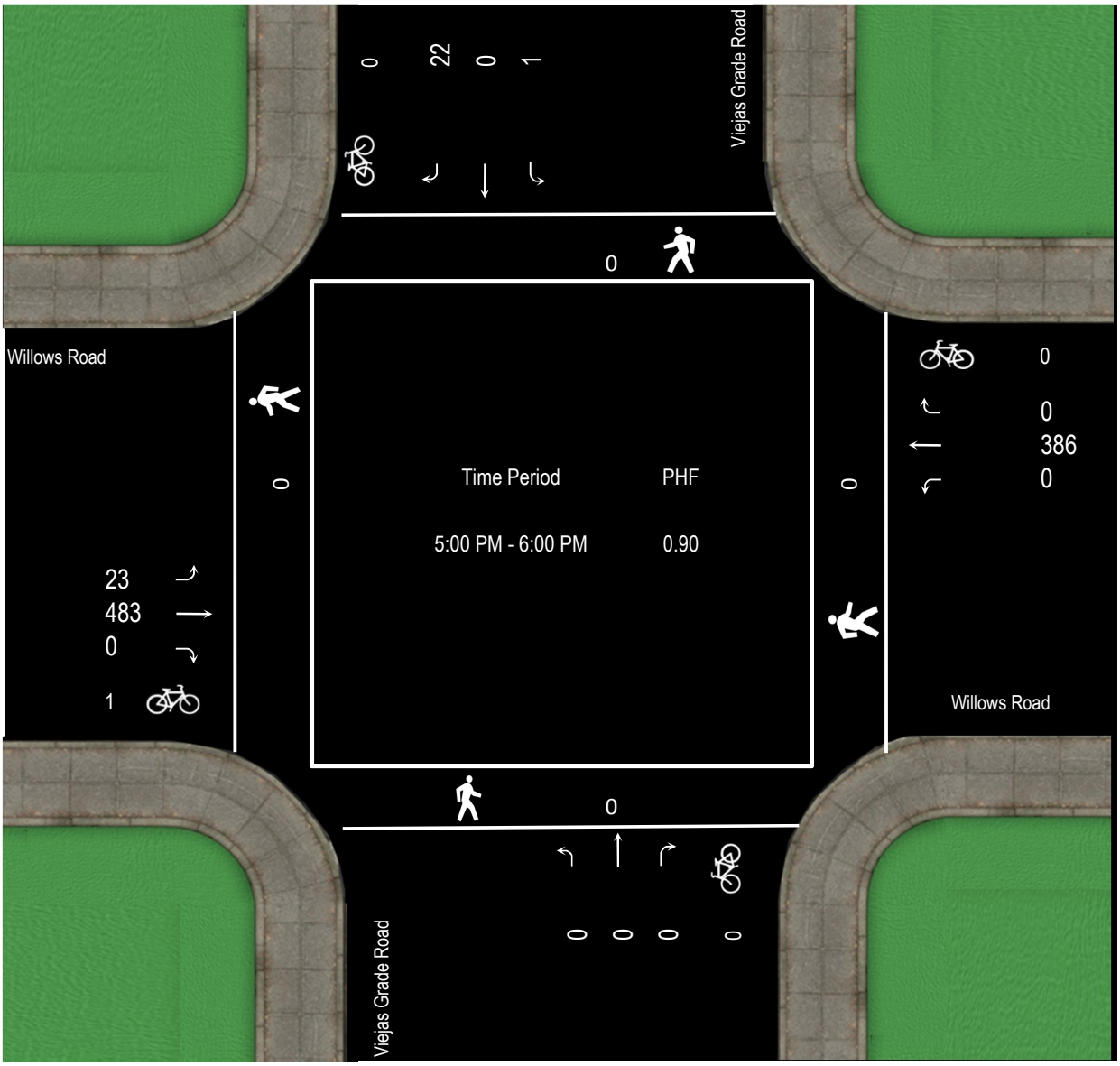
Location: Willows Road @ Viejas Grade Road

Date of Count: *Saturday, February 22, 2014*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *14-0169*



LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Willows Road @ Viejas Grade Road

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	0	0	4	0	100	1	0	0	0	11	101	0	217
4:15 PM	1	0	9	0	92	0	0	0	0	1	103	0	206
4:30 PM	0	0	7	0	89	0	0	0	0	6	110	0	212
4:45 PM	0	0	3	0	94	1	0	0	0	9	130	0	237
5:00 PM	1	0	2	0	115	0	0	0	0	5	106	0	229
5:15 PM	0	0	6	0	74	0	0	0	0	4	110	0	194
5:30 PM	0	0	8	0	113	0	0	0	0	5	128	0	254
5:45 PM	0	0	6	0	84	0	0	0	0	9	139	0	238
Total	2	0	45	0	761	2	0	0	0	50	927	0	1,787

PM Intersection Peak Hour : **5:00 PM - 6:00 PM** Intersection PHF : **0.90**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	1	0	22	0	386	0	0	0	0	23	483	0	915
PHF	0.25	#####	0.688	#####	0.839	#####	#####	#####	#####	0.639	0.869	#####	0.90
Movement PHF		0.72			0.84			#DIV/0!			0.85		0.90

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

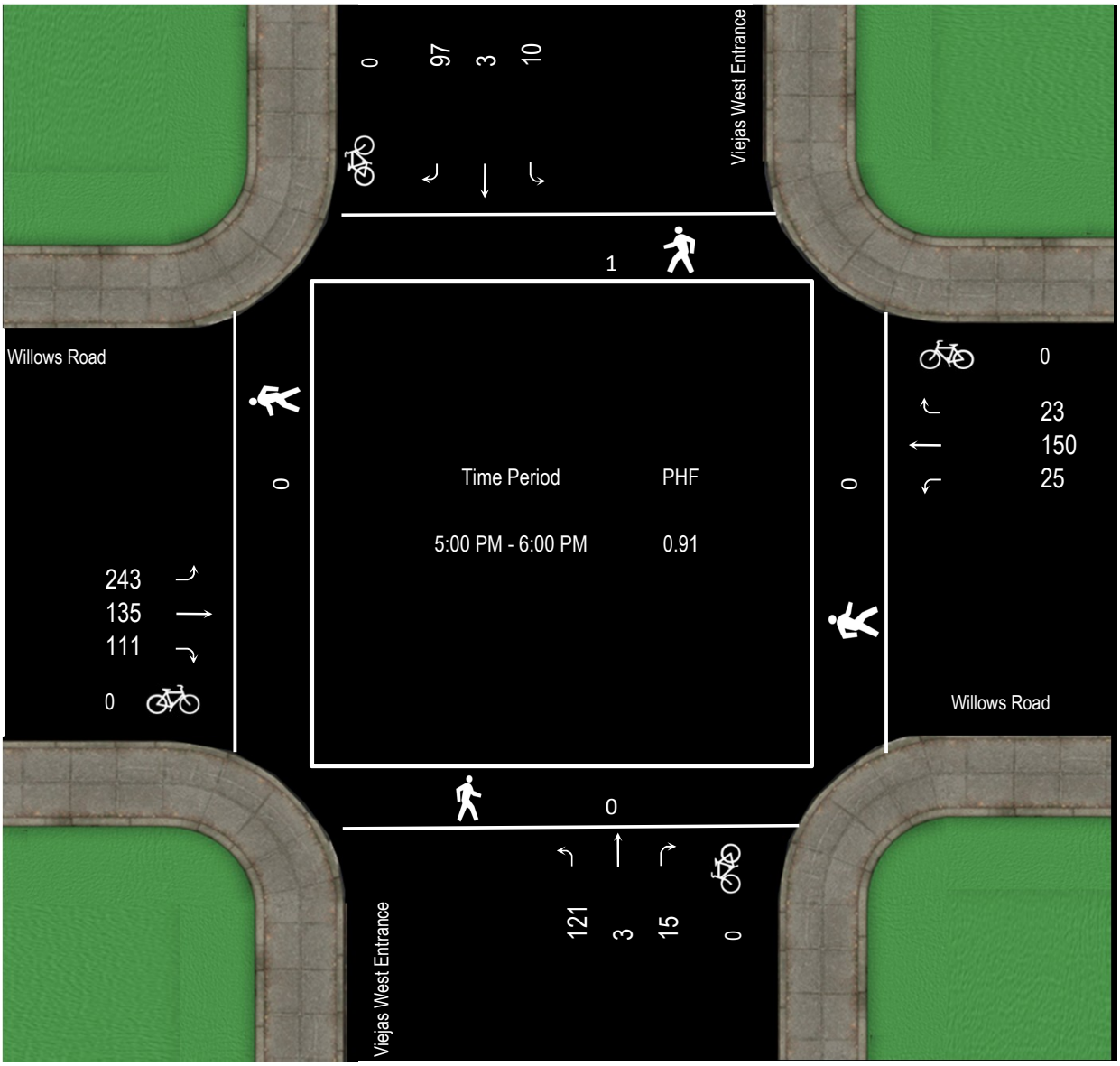
Location: Willows Road @ Viejas West Entrance

Date of Count: *Saturday, February 22, 2014*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *14-0169*



LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Willows Road @ Viejas West Entrance

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	5	1	12	10	40	5	29	0	3	32	25	25	187
4:15 PM	2	2	22	5	39	6	30	1	3	52	24	30	216
4:30 PM	3	0	18	4	36	4	33	4	5	44	41	37	229
4:45 PM	2	1	14	7	44	2	37	1	3	55	44	26	236
5:00 PM	1	2	29	5	48	8	34	0	5	46	30	28	236
5:15 PM	2	1	24	8	28	4	21	1	1	50	34	27	201
5:30 PM	4	0	24	6	41	5	42	1	3	68	34	28	256
5:45 PM	3	0	20	6	33	6	24	1	6	79	37	28	243
Total	22	7	163	51	309	40	250	9	29	426	269	229	1,804

PM Intersection Peak Hour : **5:00 PM - 6:00 PM** Intersection PHF : **0.91**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	10	3	97	25	150	23	121	3	15	243	135	111	936
PHF	0.63	0.375	0.836	0.781	0.781	0.719	0.72	0.75	0.625	0.769	0.912	0.991	0.91
Movement PHF		0.86			0.81			0.76			0.85		0.91

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

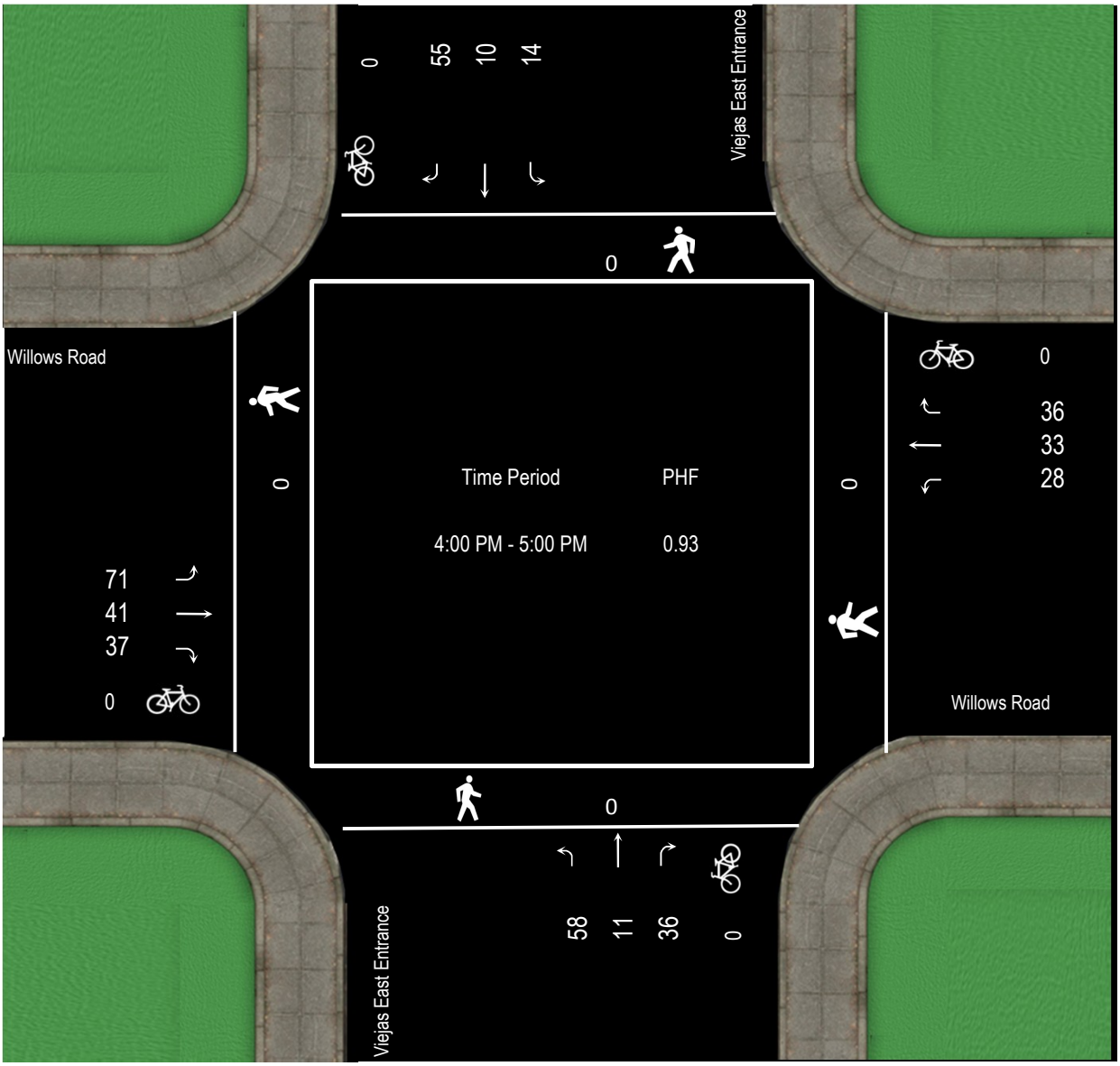
Location: Willows Road @ Viejas East Entrance

Date of Count: *Saturday, February 22, 2014*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *14-0169*



LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Willows Road @ Viejas East Entrance

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	3	2	20	10	5	5	17	3	12	11	11	16	115
4:15 PM	5	4	9	6	11	5	14	3	7	14	9	5	92
4:30 PM	3	2	12	7	11	13	9	3	11	22	10	8	111
4:45 PM	3	2	14	5	6	13	18	2	6	24	11	8	112
5:00 PM	5	4	7	6	7	8	17	3	11	21	7	7	103
5:15 PM	4	3	8	4	10	6	5	2	8	15	11	8	84
5:30 PM	4	0	18	9	13	8	10	1	13	22	10	5	113
5:45 PM	4	1	15	1	4	7	5	6	3	22	6	7	81
Total	31	18	103	48	67	65	95	23	71	151	75	64	811

PM Intersection Peak Hour : **4:00 PM - 5:00 PM** Intersection PHF : **0.93**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	14	10	55	28	33	36	58	11	36	71	41	37	430
PHF	0.70	0.625	0.688	0.7	0.75	0.692	0.806	0.917	0.75	0.74	0.932	0.578	0.93
Movement PHF		0.79			0.78			0.82			0.87		0.93

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

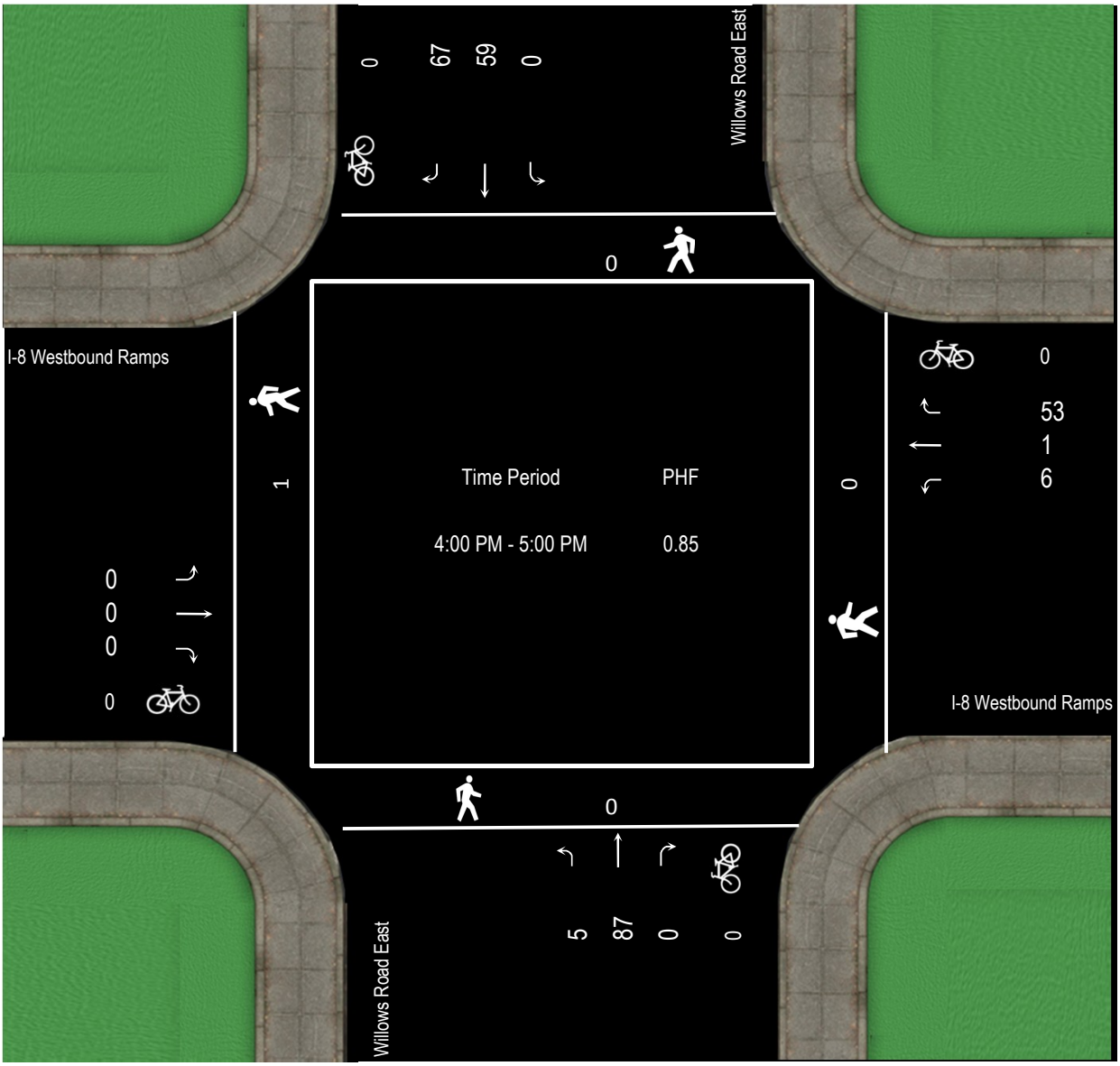
Location: I-8 Westbound Ramps @ Willows Road East

Date of Count: *Saturday, January 25, 2014*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *14-0150*



LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: I-8 Westbound Ramps @ Willows Road East

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	0	17	21	4	0	17	2	21	0	0	0	0	82
4:15 PM	0	19	27	1	0	13	0	20	0	0	0	0	80
4:30 PM	0	13	10	0	0	11	3	25	0	0	0	0	62
4:45 PM	0	10	9	1	1	12	0	21	0	0	0	0	54
5:00 PM	0	8	16	3	0	10	1	13	0	0	0	0	51
5:15 PM	0	10	11	1	0	3	3	27	0	0	0	0	55
5:30 PM	0	19	13	3	0	9	2	28	0	0	0	0	74
5:45 PM	0	10	8	0	0	10	1	15	0	0	0	0	44
Total	0	106	115	13	1	85	12	170	0	0	0	0	502

PM Intersection Peak Hour : **4:00 PM - 5:00 PM** Intersection PHF : **0.85**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	0	59	67	6	1	53	5	87	0	0	0	0	278
PHF	#####	0.776	0.62	0.375	0.25	0.779	0.417	0.87	#####	#####	#####	#####	0.85
Movement PHF		0.68			0.71			0.82			#DIV/0!		0.85

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

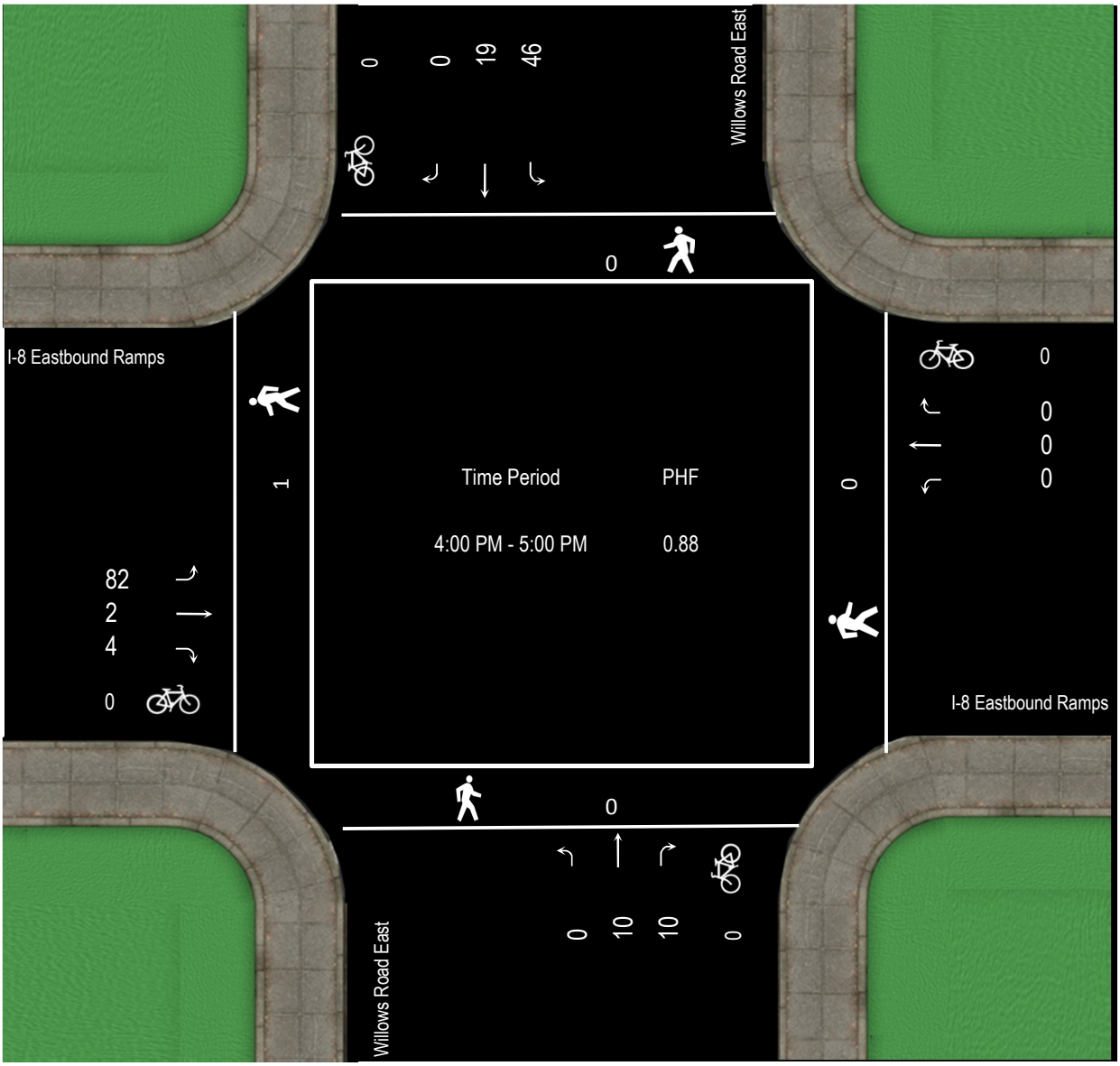
Location: I-8 Eastbound Ramps @ Willows Road East

Date of Count: *Saturday, January 25, 2014*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *14-0150*



LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: I-8 Eastbound Ramps @ Willows Road East

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	14	7	0	0	0	0	0	3	0	20	0	0	44
4:15 PM	11	9	0	0	0	0	0	2	6	18	2	1	49
4:30 PM	11	2	0	0	0	0	0	5	1	23	0	2	44
4:45 PM	10	1	0	0	0	0	0	0	3	21	0	1	36
5:00 PM	6	5	0	0	0	0	0	4	4	10	0	4	33
5:15 PM	10	1	0	0	0	0	0	5	4	25	1	2	48
5:30 PM	18	4	0	0	0	0	0	4	3	26	0	0	55
5:45 PM	9	1	0	0	0	0	0	2	1	14	1	1	29
Total	89	30	0	0	0	0	0	25	22	157	4	11	338

PM Intersection Peak Hour : **4:00 PM - 5:00 PM** Intersection PHF : **0.88**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	46	19	0	0	0	0	0	10	10	82	2	4	173
PHF	0.82	0.528	#####	#####	#####	#####	#####	0.5	0.417	0.891	0.25	0.5	0.88
Movement PHF		0.77			#DIV/0!			0.63			0.88		0.88

LINSCOTT LAW & GREENSPAN engineers

24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Willows Road, east of I-8 Ramps

Orientation: *East-West*

Date of Count: *Thursday, October 24, 2013*

Analysts: *DASH*

Weather: *Sunny*

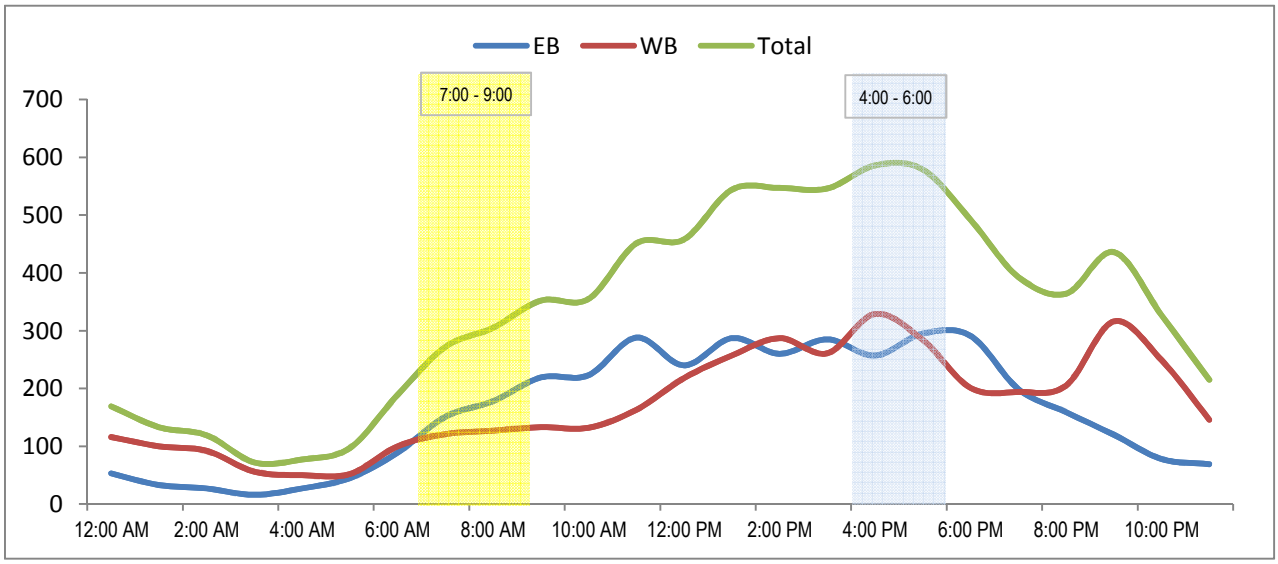
AVC Proj. No: *13-0111*

24 Hour Segment Volume			*8,078*

Time	Hourly Volume		
	EB	WB	Total
12:00 AM - 1:00 AM	53	116	169
1:00 AM - 2:00 AM	33	100	133
2:00 AM - 3:00 AM	27	92	119
3:00 AM - 4:00 AM	16	56	72
4:00 AM - 5:00 AM	27	50	77
5:00 AM - 6:00 AM	45	52	97
6:00 AM - 7:00 AM	89	100	189
7:00 AM - 8:00 AM	151	121	272
8:00 AM - 9:00 AM	178	127	305
9:00 AM - 10:00 AM	219	133	352
10:00 AM - 11:00 AM	223	132	355
11:00 AM - 12:00 PM	288	163	451
Total	**1,349**	**1,242**	**2,591**

Time	Hourly Volume		
	EB	WB	Total
12:00 PM - 1:00 PM	240	218	458
1:00 PM - 2:00 PM	287	257	544
2:00 PM - 3:00 PM	260	287	547
3:00 PM - 4:00 PM	285	261	546
4:00 PM - 5:00 PM	257	329	586
5:00 PM - 6:00 PM	295	284	579
6:00 PM - 7:00 PM	291	201	492
7:00 PM - 8:00 PM	199	194	393
8:00 PM - 9:00 PM	159	205	364
9:00 PM - 10:00 PM	120	316	436
10:00 PM - 11:00 PM	78	249	327
11:00 PM - 12:00 AM	69	146	215
Total	**2,540**	**2,947**	**5,487**

24-Hour	*EB*	*Volume*	*3,889*	*24-Hour*	*WB*	*Volume*	*4,189*



LINSCOTT LAW & GREENSPAN engineers

24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Willows Road – West of Viejas Casino

Orientation: *East-West*

Date of Count: *Saturday, February 22, 2014*

Analysts: *DASH*

Weather: *Sunny*

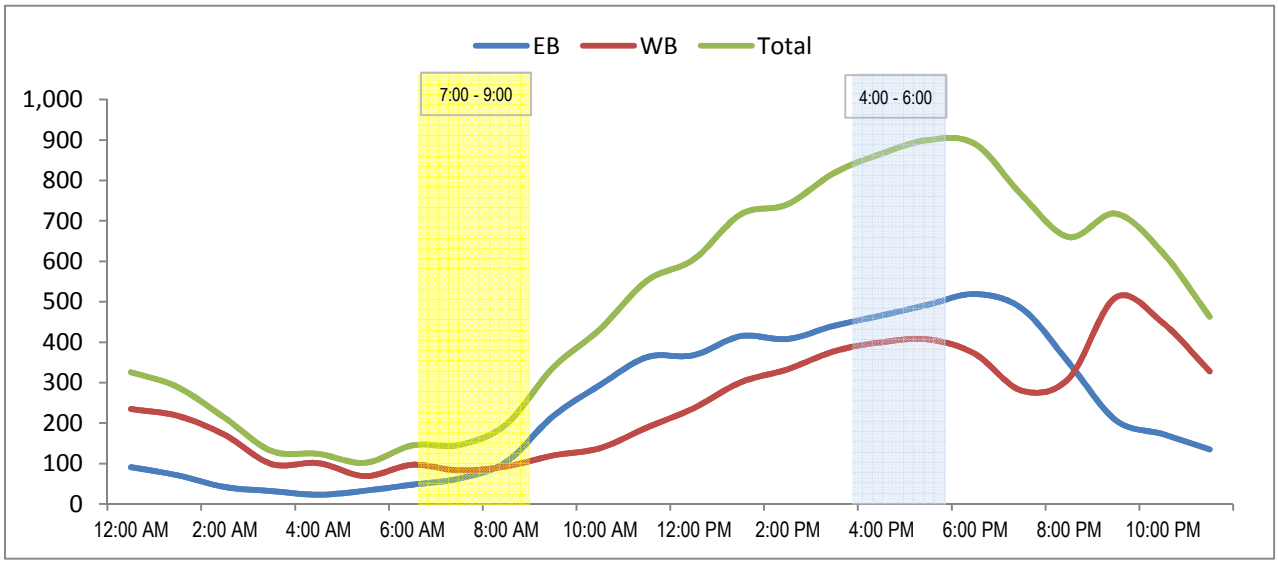
AVC Proj. No: *14-0169*

24 Hour Segment Volume			*11,756*

Time	Hourly Volume		
	EB	WB	Total
12:00 AM - 1:00 AM	91	235	326
1:00 AM - 2:00 AM	71	218	289
2:00 AM - 3:00 AM	42	171	213
3:00 AM - 4:00 AM	32	99	131
4:00 AM - 5:00 AM	23	101	124
5:00 AM - 6:00 AM	33	69	102
6:00 AM - 7:00 AM	48	97	145
7:00 AM - 8:00 AM	63	83	146
8:00 AM - 9:00 AM	104	93	197
9:00 AM - 10:00 AM	217	120	337
10:00 AM - 11:00 AM	294	138	432
11:00 AM - 12:00 PM	363	189	552
Total	**1,381**	**1,613**	**2,994**

Time	Hourly Volume		
	EB	WB	Total
12:00 PM - 1:00 PM	368	237	605
1:00 PM - 2:00 PM	415	301	716
2:00 PM - 3:00 PM	408	333	741
3:00 PM - 4:00 PM	441	378	819
4:00 PM - 5:00 PM	466	400	866
5:00 PM - 6:00 PM	493	407	900
6:00 PM - 7:00 PM	519	371	890
7:00 PM - 8:00 PM	483	280	763
8:00 PM - 9:00 PM	349	311	660
9:00 PM - 10:00 PM	207	511	718
10:00 PM - 11:00 PM	173	448	621
11:00 PM - 12:00 AM	135	328	463
Total	**4,457**	**4,305**	**8,762**

24-Hour	*EB*	*Volume*	*5,838*	*24-Hour*	*WB*	*Volume*	*5,918*



LINSCOTT LAW & GREENSPAN engineers

24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Willows Road – East of Viejas Casino

Orientation: *East-West*

Date of Count: *Saturday, February 22, 2014*

Analysts: *DASH*

Weather: *Sunny*

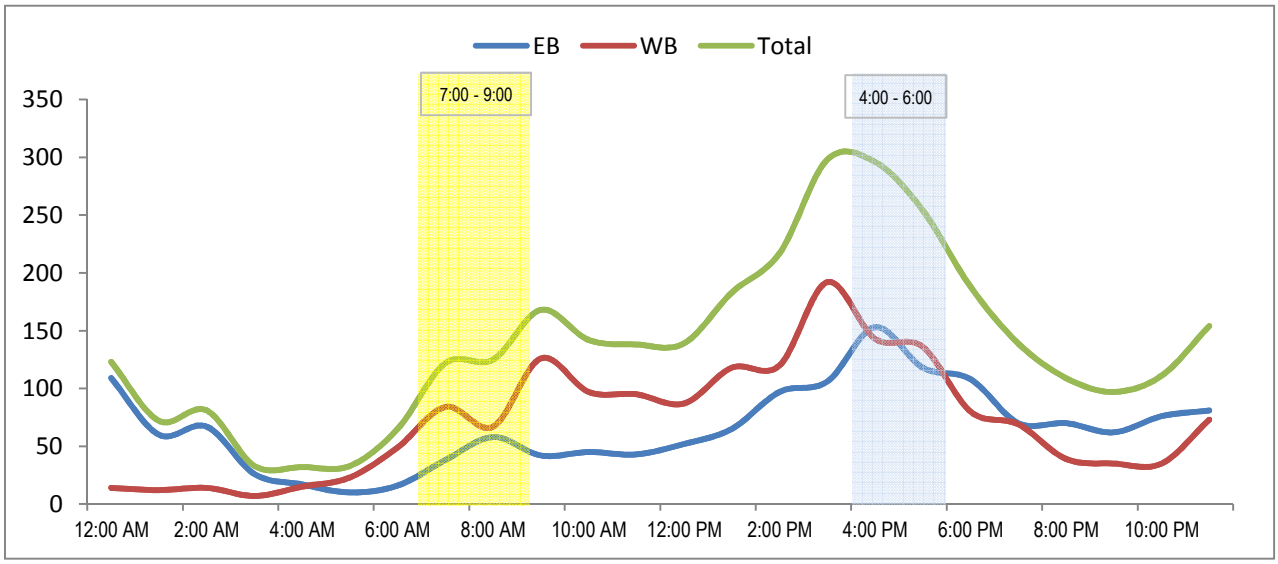
AVC Proj. No: *14-0169*

24 Hour Segment Volume			*3,319*

Time	Hourly Volume		
	EB	WB	Total
12:00 AM - 1:00 AM	109	14	123
1:00 AM - 2:00 AM	60	12	72
2:00 AM - 3:00 AM	67	14	81
3:00 AM - 4:00 AM	26	7	33
4:00 AM - 5:00 AM	17	15	32
5:00 AM - 6:00 AM	10	23	33
6:00 AM - 7:00 AM	16	49	65
7:00 AM - 8:00 AM	38	84	122
8:00 AM - 9:00 AM	58	67	125
9:00 AM - 10:00 AM	42	126	168
10:00 AM - 11:00 AM	45	97	142
11:00 AM - 12:00 PM	43	95	138
Total	**531**	**603**	**1,134**

Time	Hourly Volume		
	EB	WB	Total
12:00 PM - 1:00 PM	52	87	139
1:00 PM - 2:00 PM	65	118	183
2:00 PM - 3:00 PM	97	120	217
3:00 PM - 4:00 PM	106	192	298
4:00 PM - 5:00 PM	153	143	296
5:00 PM - 6:00 PM	118	136	254
6:00 PM - 7:00 PM	108	80	188
7:00 PM - 8:00 PM	70	69	139
8:00 PM - 9:00 PM	70	39	109
9:00 PM - 10:00 PM	62	35	97
10:00 PM - 11:00 PM	76	35	111
11:00 PM - 12:00 AM	81	73	154
Total	**1,058**	**1,127**	**2,185**

24-Hour	*EB*	*Volume*	*1,589*	*24-Hour*	*WB*	*Volume*	*1,730*



Growth Calculations

Street Segment	Viejas Hotel North Tower ADT Counts[a]		Viejas Hotel South Tower ADT Counts[b]		Growth	
	Weekday	Saturday	Weekday	Saturday	Weekday	Saturday
Willows Road						
West of Viejas Casino	7,730	11,810	8,080	11,760	4.5%	-0.4%
East of Viejas Casino	2,440	2,730	2,550	3,320	4.5%	21.6%

Footnotes:

a. ADT counts were conducted on September 2011.

b. ADT weekday and Saturday counts were conducted on October 2013 and February 2014, respectively.

APPENDIX B

INTERSECTION METHODOLOGY AND ANALYSIS SHEETS

SIGNALIZED INTERSECTIONS

For signalized intersections, level of service criteria are stated in terms of the average control delay per vehicle for a 15-minute analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. **Table 1** summarizes the delay thresholds for signalized intersections.

Level of service A describes operations with very low delay, (i.e. less than 10.0 seconds per vehicle). This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

Level of service B describes operations with delay in the range 10.1 seconds and 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.

TABLE 1

LEVEL OF SERVICE THRESHOLDS FOR SIGNALIZED INTERSECTIONS

AVERAGE CONTROL DELAY PER VEHICLE (SECONDS/VEHICLE)			LEVEL OF SERVICE
0.0	≤	10.0	A
10.1	to	20.0	B
21.1	to	35.0	C
35.1	to	55.0	D
55.1	to	80.0	E
	≥	80.0	F

Source: Highway Capacity Manual, 2000.

Level of service C describes operations with delay in the range 20.1 seconds and 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

Level of service D describes operations with delay in the range 35.1 seconds and 55.0 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or higher v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are more frequent.

Level of service E describes operations with delay in the range of 55.1 seconds to 80.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

Level of service F describes operations with delay in excess of over 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation (i.e., when arrival flow rates exceed the capacity of the intersection). It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

UNSIGNALIZED INTERSECTIONS

For unsignalized intersections, level of service is determined by the computed or measured control delay and is defined for each minor movement. Level of service is not defined for the intersection as a whole. **Table 2** depicts the criteria, which are based on the average control delay for any particular minor movement.

TABLE 2

LEVEL OF SERVICE THRESHOLDS FOR UNSIGNALIZED INTERSECTIONS

AVERAGE CONTROL DELAY PER VEHICLE (SECONDS/VEHICLE)	LEVEL OF SERVICE	EXPECTED DELAY TO MINOR STREET TRAFFIC
0.0 ≤ 10.0	A	Little or no delay
10.1 to 15.0	B	Short traffic delays
15.1 to 25.0	C	Average traffic delays
25.1 to 35.0	D	Long traffic delays
35.1 to 50.0	E	Very long traffic delays
≥ 50.0	F	Severe congestion

Source: Highway Capacity Manual, 2000.

Level of Service F exists when there are insufficient gaps of suitable size to allow a side street demand to safely cross through a major street traffic stream. This level of service is generally evident from extremely long control delays experienced by side-street traffic and by queuing on the minor-street approaches. The method, however, is based on a constant critical gap size; that is, the critical gap remains constant no matter how long the side-street motorist waits. LOS F may also appear in the form of side-street vehicles selecting smaller-than-usual gaps. In such cases, safety may be a problem, and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior, which are more difficult to observe in the field than queuing.

APPENDIX C

COUNTY OF SAN DIEGO ROADWAY CLASSIFICATION TABLE

Table 1
Average Daily Vehicle Trips*

CIRCULATION ELEMENT ROADS			LEVELS OF SERVICE				
Roadway Classification		#of Travel Lanes	A	B	C	D	E
Expressway (6.1)		6	<36,000	<54,000	<70,000	<86,000	<108,000
Prime Arterial (6.2)		6	<22,200	<37,000	<44,600	<50,000	<57,000
Major Road	(4.1A)	4	<14,800	<24,700	<29,600	<33,400	<37,000
	W/ Intermittent Turn Lanes (4.1B)	4	<13,700	<22,800	<27,400	<30,800	<34,200
Collector		4	<13,700	<22,800	<27,400	<30,800	<34,200
Boulevard	W/ Raised Median (4.2A)	4	<18,000	<21,000	<24,000	<27,000	<30,000
	W/ Intermittent Turn Lanes (4.2B)	4	<16,800	<19,600	<22,500	<25,000	<28,000
Town Collector		2	<3,000	<6,000	<9,500	<13,500	<19,000
Community Collector	W/ Raised Median (2.1)	2	<10,000	<11,700	<13,400	<15,000	<19,000
	W/ Continuous Left-Turn Lane (2.1B)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	W/ Intermittent Turn Lanes (2.1C)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	W/ Passing Lane (2.1D)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	No Median (2.1E)	2	<1,900	<4,100	<7,100	<10,900	<16,200
Light Collector	W/ Raised Median (2.2A)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	W/ Continuous Left-Turn Lane (2.2B)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	W/ Intermittent Turn Lanes (2.2C)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	W/ Passing Lane (2.2D)	2	<3,000	<6,000	<9,500	<13,500	<19,000
	No Median (2.2E)	2	<1,900	<4,100	<7,100	<10,900	<16,200
		2	<1,900	<4,100	<7,100	<10,900	<16,200
	W/ Reduced Shoulder	2	<5,800	<6,800	<7,800	<8,700	<9,700
Rural Collector	Collector	2	<1,900	<4,100	<7,100	<10,900	<16,200
Rural Light Collector		2	<1,900	<4,100	<7,100	<10,900	<16,200
Rural Mountain		2	<1,900	<4,100	<7,100	<10,900	<16,200
Recreational Parkway		2	<1,900	<4,100	<7,100	<10,900	<16,200
Minor Collector	W/ Raised Median (2.3A)	2	<3,000	<6,000	<7,000	<8,000	<9,000
	W/ Intermittent (Turn Lane (2.3B)	2	<3,000	<6,000	<7,000	<8,000	<9,000
	No Median (2.3CE)	2	<1,900	<4,100	<6,000	<7,000	<8,000
NON-CIRCULATION ELEMENT ROADS **			LEVELS OF SERVICE				
Residential Collector		2	-	-	<4,500	-	-
Rural Residential Collector ***		2	-	-	<4,500	-	-
Residential Road		2	-	-	<1,500	-	-
Rural Residential Road ***		2	-	-	<1,500	-	-
Residential Cul-de-Sac or Loop Road		2	-	-	<200	-	-

*The values shown are subject to adjustment based on the geometry of the roadway side frictions, and other relevant factors as determined by the Director, Department of Public Works.
**Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.
***Rural Residential Collectors and Rural Residential Roads are intended to serve areas with lot sizes of 2 acres or more which do not have a demand for on-street parking. On-street parking is not assured for these cross sections. Additional right-of-way is needed if on-street parking is in paved area.
****See Tables 2A and 2B for roadway surfacing and right-of-way widths.

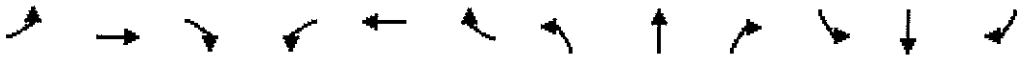
APPENDIX D

EXISTING PEAK HOUR INTERSECTION CALCULATION SHEETS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	61	1	6	35	288	0	0	103	245
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	66	1	7	38	313	0	0	112	266
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	641	634	245	634	767	313	378			313		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	641	634	245	634	767	313	378			313		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	83	100	99	97			100		
cM capacity (veh/h)	374	384	794	382	322	727	1180			1247		

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	66	8	351	378
Volume Left	66	0	38	0
Volume Right	0	7	0	266
cSH	382	616	1180	1700
Volume to Capacity	0.17	0.01	0.03	0.22
Queue Length 95th (ft)	16	1	2	0
Control Delay (s)	16.4	10.9	1.2	0.0
Lane LOS	C	B	A	
Approach Delay (s)	15.8		1.2	0.0
Approach LOS	C			

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	203	0	57	0	0	0	0	120	105	2	162	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	221	0	62	0	0	0	0	130	114	2	176	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	368	425	176	430	368	188	176			245		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	368	425	176	430	368	188	176			245		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	62	100	93	100	100	100	100			100		
cM capacity (veh/h)	588	520	867	497	560	855	1400			1322		

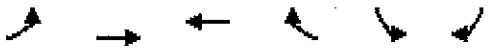
Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	221	62	245	178
Volume Left	221	0	0	2
Volume Right	0	62	114	0
cSH	588	867	1700	1322
Volume to Capacity	0.38	0.07	0.14	0.00
Queue Length 95th (ft)	43	6	0	0
Control Delay (s)	14.8	9.5	0.0	0.1
Lane LOS	B	A		A
Approach Delay (s)	13.6		0.0	0.1
Approach LOS	B			

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	30.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	208	25	31	17	32	187
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	226	27	34	18	35	203
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	207	171	273	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	207	171	273	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	68	96	95	98	98	
cM capacity (veh/h)	696	706	620	1085	1623	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	253	52	238
Volume Left	226	0	35
Volume Right	0	18	203
cSH	697	731	1623
Volume to Capacity	0.36	0.07	0.02
Queue Length 95th (ft)	42	6	2
Control Delay (s)	13.1	10.3	1.2
Lane LOS	B	B	A
Approach Delay (s)	13.1	10.3	1.2
Approach LOS	B	B	

Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	39.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	42	200	210	3	0	53
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	217	228	3	0	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	232				539	230
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	232				539	230
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				100	93
cM capacity (veh/h)	1336				486	809

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	46	217	232	58
Volume Left	46	0	0	0
Volume Right	0	0	3	58
cSH	1336	1700	1700	809
Volume to Capacity	0.03	0.13	0.14	0.07
Queue Length 95th (ft)	3	0	0	6
Control Delay (s)	7.8	0.0	0.0	9.8
Lane LOS	A			A
Approach Delay (s)	1.4		0.0	9.8
Approach LOS				A

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	27.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	93	121	56	0	8	138	2	0	54	0	2
Peak Hour Factor	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	98	127	59	0	8	145	2	0	57	0	2
Number of Lanes	0	1	2	0	0	1	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	3
HCM Control Delay	9	9.8	9.7
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	0%	100%	42%	0%	100%	0%	0%	0%
Vol Right, %	0%	100%	0%	0%	58%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	54	2	93	81	96	8	138	2	4	78
LT Vol	0	0	0	81	40	0	138	0	0	0
Through Vol	0	2	0	0	56	0	0	2	0	78
RT Vol	54	0	93	0	0	8	0	0	4	0
Lane Flow Rate	57	2	98	85	101	8	145	2	4	82
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.1	0.003	0.158	0.125	0.138	0.014	0.223	0.003	0.007	0.117
Departure Headway (Hd)	6.348	5.149	5.816	5.313	4.905	6.04	5.538	4.835	6.322	5.123
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	561	689	614	671	727	589	645	734	563	694
Service Time	4.129	2.929	3.576	3.074	2.665	3.809	3.306	2.603	4.097	2.897
HCM Lane V/C Ratio	0.102	0.003	0.16	0.127	0.139	0.014	0.225	0.003	0.007	0.118
HCM Control Delay	9.8	7.9	9.7	8.8	8.5	8.9	9.9	7.6	9.1	8.6
HCM Lane LOS	A	A	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0	0.6	0.4	0.5	0	0.8	0	0	0.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	4	0	78
Peak Hour Factor	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	4	0	82
Number of Lanes	0	0	1	1

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	8.6
HCM LOS	A

Lane

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	56	39	31	0	15	37	23	0	21	7	27
Peak Hour Factor	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	59	41	33	0	16	39	24	0	22	7	28
Number of Lanes	0	1	1	1	0	1	2	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	3
HCM Control Delay	8.4	8.1	8.1
HCM LOS	A	A	A

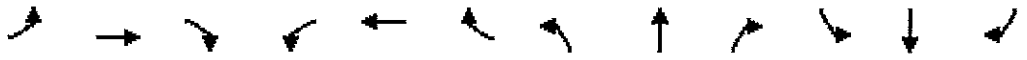
Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	75%	0%	100%	0%	0%	100%	0%	0%	30%
Vol Thru, %	25%	0%	0%	100%	0%	0%	100%	35%	5%
Vol Right, %	0%	100%	0%	0%	100%	0%	0%	65%	65%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	28	27	56	39	31	15	25	35	111
LT Vol	7	0	0	39	0	0	25	12	6
Through Vol	0	27	0	0	31	0	0	23	72
RT Vol	21	0	56	0	0	15	0	0	33
Lane Flow Rate	29	28	59	41	33	16	26	37	117
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.047	0.037	0.093	0.059	0.041	0.025	0.038	0.05	0.159
Departure Headway (Hd)	5.703	4.628	5.691	5.189	4.485	5.805	5.302	4.844	4.906
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	628	773	630	690	797	616	675	738	730
Service Time	3.438	2.362	3.428	2.925	2.221	3.543	3.04	2.582	2.639
HCM Lane V/C Ratio	0.046	0.036	0.094	0.059	0.041	0.026	0.039	0.05	0.16
HCM Control Delay	8.7	7.5	9	8.3	7.4	8.7	8.3	7.8	8.6
HCM Lane LOS	A	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.2	0.6

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	33	6	72
Peak Hour Factor	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	35	6	76
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	8.6
HCM LOS	A

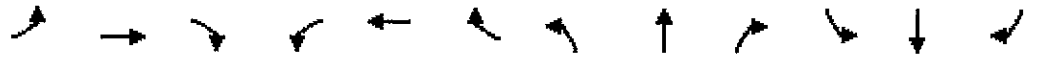
Lane



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	10	0	23	3	42	0	0	54	78
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	11	0	25	3	46	0	0	59	85
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	178	153	101	153	196	46	143			46		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	178	153	101	153	196	46	143			46		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	98	100			100		
cM capacity (veh/h)	763	737	954	812	698	1024	1439			1562		

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	11	25	49	143
Volume Left	11	0	3	0
Volume Right	0	25	0	85
cSH	812	1024	1439	1700
Volume to Capacity	0.01	0.02	0.00	0.08
Queue Length 95th (ft)	1	2	0	0
Control Delay (s)	9.5	8.6	0.5	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.9		0.5	0.0
Approach LOS	A			

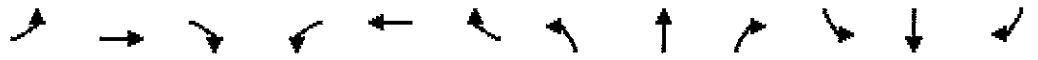
Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	17.6%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	1	3	0	0	0	0	3	7	47	17	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	1	3	0	0	0	0	3	8	51	18	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	128	132	18	132	128	7	18			11		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	128	132	18	132	128	7	18			11		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	100	100	100	100	100			97		
cM capacity (veh/h)	825	735	1060	817	739	1075	1598			1608		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	50	11	70
Volume Left	46	0	51
Volume Right	3	8	0
cSH	835	1700	1608
Volume to Capacity	0.06	0.01	0.03
Queue Length 95th (ft)	5	0	2
Control Delay (s)	9.6	0.0	5.4
Lane LOS	A		A
Approach Delay (s)	9.6	0.0	5.4
Approach LOS	A		

Intersection Summary			
Average Delay	6.6		
Intersection Capacity Utilization	20.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	77	3	14	43	477	0	0	74	323
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	84	3	15	47	518	0	0	80	351
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	885	868	256	868	1043	518	432			518		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	885	868	256	868	1043	518	432			518		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	68	99	97	96			100		
cM capacity (veh/h)	247	278	783	264	220	557	1128			1048		

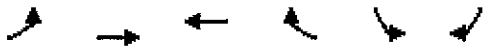
Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	84	18	565	432
Volume Left	84	0	47	0
Volume Right	0	15	0	351
cSH	264	438	1128	1700
Volume to Capacity	0.32	0.04	0.04	0.25
Queue Length 95th (ft)	33	3	3	0
Control Delay (s)	24.8	13.6	1.1	0.0
Lane LOS	C	B	A	
Approach Delay (s)	22.8		1.1	0.0
Approach LOS	C			

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	392	0	34	0	0	0	0	128	83	2	149	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	426	0	37	0	0	0	0	139	90	2	162	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	351	396	162	388	351	184	162			229		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	351	396	162	388	351	184	162			229		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	29	100	96	100	100	100	100			100		
cM capacity (veh/h)	603	540	883	547	573	858	1417			1339		

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	426	37	229	164
Volume Left	426	0	0	2
Volume Right	0	37	90	0
cSH	603	883	1700	1339
Volume to Capacity	0.71	0.04	0.13	0.00
Queue Length 95th (ft)	143	3	0	0
Control Delay (s)	24.0	9.3	0.0	0.1
Lane LOS	C	A		A
Approach Delay (s)	22.8		0.0	0.1
Approach LOS	C			

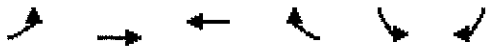
Intersection Summary			
Average Delay	12.4		
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	198	37	25	13	13	170
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	215	40	27	14	14	185
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	148	121	213	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	148	121	213	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	72	95	96	99	99	
cM capacity (veh/h)	779	763	678	1085	1623	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	255	41	199
Volume Left	215	0	14
Volume Right	0	14	185
cSH	777	778	1623
Volume to Capacity	0.33	0.05	0.01
Queue Length 95th (ft)	36	4	1
Control Delay (s)	11.9	9.9	0.6
Lane LOS	B	A	A
Approach Delay (s)	11.9	9.9	0.6
Approach LOS	B	A	

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	23	483	386	0	1	22
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	525	420	0	1	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	420				995	420
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	420				995	420
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				100	96
cM capacity (veh/h)	1140				266	634

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	25	525	420	25
Volume Left	25	0	0	1
Volume Right	0	0	0	24
cSH	1140	1700	1700	598
Volume to Capacity	0.02	0.31	0.25	0.04
Queue Length 95th (ft)	2	0	0	3
Control Delay (s)	8.2	0.0	0.0	11.3
Lane LOS	A			B
Approach Delay (s)	0.4		0.0	11.3
Approach LOS				B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	12.1
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	243	135	111	0	25	150	23	0	121	3	15
Peak Hour Factor	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	256	142	117	0	26	158	24	0	127	3	16
Number of Lanes	0	1	2	0	0	1	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	3
HCM Control Delay	12.6	11.6	12.3
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	77%	0%
Vol Thru, %	0%	17%	0%	100%	29%	0%	100%	0%	23%	0%
Vol Right, %	0%	83%	0%	0%	71%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	121	18	243	90	156	25	150	23	13	97
LT Vol	0	3	0	90	45	0	150	0	3	0
Through Vol	0	15	0	0	111	0	0	23	0	97
RT Vol	121	0	243	0	0	25	0	0	10	0
Lane Flow Rate	127	19	256	95	164	26	158	24	14	102
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.262	0.033	0.468	0.16	0.255	0.053	0.293	0.04	0.028	0.18
Departure Headway (Hd)	7.404	6.318	6.591	6.086	5.582	7.194	6.687	5.978	7.427	6.338
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	484	564	545	588	642	496	535	596	480	564
Service Time	5.174	4.087	4.344	3.838	3.335	4.96	4.453	3.744	5.198	4.109
HCM Lane V/C Ratio	0.262	0.034	0.47	0.162	0.255	0.052	0.295	0.04	0.029	0.181
HCM Control Delay	12.8	9.3	15.1	10	10.3	10.4	12.2	9	10.4	10.5
HCM Lane LOS	B	A	C	A	B	B	B	A	B	B
HCM 95th-tile Q	1	0.1	2.5	0.6	1	0.2	1.2	0.1	0.1	0.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	10	3	97
Peak Hour Factor	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	11	3	102
Number of Lanes	0	0	1	1

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	10.5
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	71	41	37	0	28	33	36	0	58	11	36
Peak Hour Factor	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	75	43	39	0	29	35	38	0	61	12	38
Number of Lanes	0	1	1	1	0	1	2	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	3
HCM Control Delay	8.7	8.4	8.8
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	84%	0%	100%	0%	0%	100%	0%	0%	18%
Vol Thru, %	16%	0%	0%	100%	0%	0%	100%	23%	13%
Vol Right, %	0%	100%	0%	0%	100%	0%	0%	77%	70%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	69	36	71	41	37	28	22	47	79
LT Vol	11	0	0	41	0	0	22	11	10
Through Vol	0	36	0	0	37	0	0	36	55
RT Vol	58	0	71	0	0	28	0	0	14
Lane Flow Rate	73	38	75	43	39	29	23	49	83
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.117	0.049	0.121	0.064	0.05	0.049	0.035	0.067	0.117
Departure Headway (Hd)	5.81	4.69	5.814	5.311	4.606	5.928	5.425	4.886	5.059
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	615	760	615	672	774	602	657	730	705
Service Time	3.562	2.442	3.562	3.059	2.354	3.683	3.179	2.639	2.812
HCM Lane V/C Ratio	0.119	0.05	0.122	0.064	0.05	0.048	0.035	0.067	0.118
HCM Control Delay	9.3	7.7	9.4	8.4	7.6	9	8.4	8	8.5
HCM Lane LOS	A	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.4	0.2	0.2	0.2	0.1	0.2	0.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	14	10	55
Peak Hour Factor	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	15	11	58
Number of Lanes	0	0	1	0

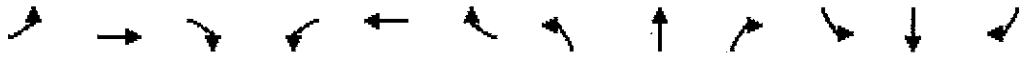
Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	8.5
HCM LOS	A

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	6	1	53	5	87	0	0	59	67
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	7	1	58	5	95	0	0	64	73
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	264	206	101	206	242	95	137			95		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	264	206	101	206	242	95	137			95		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	94	100			100		
cM capacity (veh/h)	645	688	955	750	657	962	1447			1499		

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	7	59	100	137
Volume Left	7	0	5	0
Volume Right	0	58	0	73
cSH	750	954	1447	1700
Volume to Capacity	0.01	0.06	0.00	0.08
Queue Length 95th (ft)	1	5	0	0
Control Delay (s)	9.8	9.0	0.4	0.0
Lane LOS	A	A	A	
Approach Delay (s)	9.1		0.4	0.0
Approach LOS	A			

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	18.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	82	2	4	0	0	0	0	10	10	46	19	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	89	2	4	0	0	0	0	11	11	50	21	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	137	142	21	142	137	16	21			22		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	137	142	21	142	137	16	21			22		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	100	100	100	100	100	100			97		
cM capacity (veh/h)	814	725	1057	802	730	1063	1595			1594		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	96	22	71
Volume Left	89	0	50
Volume Right	4	11	0
cSH	820	1700	1594
Volume to Capacity	0.12	0.01	0.03
Queue Length 95th (ft)	10	0	2
Control Delay (s)	10.0	0.0	5.3
Lane LOS	A		A
Approach Delay (s)	10.0	0.0	5.3
Approach LOS	A		

Intersection Summary			
Average Delay	7.0		
Intersection Capacity Utilization	21.8%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX E

CUMULATIVE PROJECT INFORMATION

TABLE 8–1
CUMULATIVE PROJECTS TRIP GENERATION SUMMARY

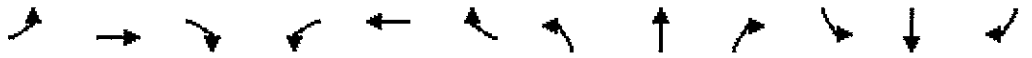
Sl. No.	Project Number	Project Name	Land Use	Intensity	Unit	Daily Trips	PM Trips	PM In	PM Out
1	350010-005	Cronin Light Industrial	Industrial Park	33.5	TSF	536	64	13	51
2	3500 03-073-01	DGJM Self Storage	Storage	119.78	TSF	240	22	11	11
3	3500 01-064-01	Alpine Regional Center Expansion	Specialty Retail	25	TSF	1,000	90	45	45
			Bank with Drive-Through	2	TSF	400	40	20	20
					Sub-Total	1,400	130	65	65
4	3300 64-018-04	Alpine Convalescent	Convalescent	29	Beds	87	6	2	4
5	3500 10-022	Victoria Village	Specialty Retail	5.525	TSF	221	20	10	10
			Condominiums	4	DU	32	3	2	1
					Sub-Total	253	23	12	11
6	3100 5431	Victoria Estates	Rural Estates	35	DU	420	42	29	13
7	N/A	Alpine High School	High School	1,100	Students	1,430	143	57	86
8	N/A	Library	Library	13	KSF	650	65	32	33
9	N/A	Walker Health Clinic	Dental and Standard Commercial Office	26.4	KSF	939	108	29	79
Total Cumulative Project Trips						**5,955**	**603**	**250**	**353**

General Note:

a. N/A – Not available.

APPENDIX F

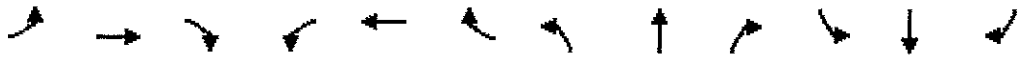
EXISTING + PROJECT PEAK HOUR INTERSECTION CALCULATION SHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	61	1	6	35	297	0	0	105	256
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	66	1	7	38	323	0	0	114	278
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	659	652	253	652	791	323	392			323		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	659	652	253	652	791	323	392			323		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	82	100	99	97			100		
cM capacity (veh/h)	363	374	785	371	311	718	1166			1237		

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	66	8	361	392
Volume Left	66	0	38	0
Volume Right	0	7	0	278
cSH	371	605	1166	1700
Volume to Capacity	0.18	0.01	0.03	0.23
Queue Length 95th (ft)	16	1	3	0
Control Delay (s)	16.8	11.0	1.2	0.0
Lane LOS	C	B	A	
Approach Delay (s)	16.2		1.2	0.0
Approach LOS	C			

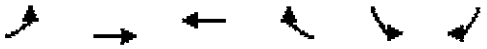
Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	211	0	57	0	0	0	0	121	105	2	164	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	229	0	62	0	0	0	0	132	114	2	178	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	371	428	178	433	371	189	178			246		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	371	428	178	433	371	189	178			246		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	61	100	93	100	100	100	100			100		
cM capacity (veh/h)	585	518	865	494	558	853	1398			1320		

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	229	62	246	180
Volume Left	229	0	0	2
Volume Right	0	62	114	0
cSH	585	865	1700	1320
Volume to Capacity	0.39	0.07	0.14	0.00
Queue Length 95th (ft)	46	6	0	0
Control Delay (s)	15.1	9.5	0.0	0.1
Lane LOS	C	A		A
Approach Delay (s)	13.9		0.0	0.1
Approach LOS	B			

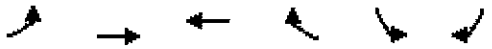
Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	31.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	209	25	31	17	32	189
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	227	27	34	18	35	205
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	208	172	275	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	208	172	275	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	67	96	95	98	98	
cM capacity (veh/h)	695	705	619	1085	1623	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	254	52	240
Volume Left	227	0	35
Volume Right	0	18	205
cSH	696	730	1623
Volume to Capacity	0.37	0.07	0.02
Queue Length 95th (ft)	42	6	2
Control Delay (s)	13.1	10.3	1.2
Lane LOS	B	B	A
Approach Delay (s)	13.1	10.3	1.2
Approach LOS	B	B	

Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	39.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	42	209	223	3	0	53
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	227	242	3	0	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	246				562	244
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	246				562	244
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				100	93
cM capacity (veh/h)	1320				471	795

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	46	227	246	58
Volume Left	46	0	0	0
Volume Right	0	0	3	58
cSH	1320	1700	1700	795
Volume to Capacity	0.03	0.13	0.14	0.07
Queue Length 95th (ft)	3	0	0	6
Control Delay (s)	7.8	0.0	0.0	9.9
Lane LOS	A			A
Approach Delay (s)	1.3		0.0	9.9
Approach LOS				A

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	9.4
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	93	130	56	0	8	151	2	0	54	0	2
Peak Hour Factor	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	98	137	59	0	8	159	2	0	57	0	2
Number of Lanes	0	1	2	0	0	1	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	3
HCM Control Delay	9.1	10.1	9.8
HCM LOS	A	B	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	0%	100%	44%	0%	100%	0%	0%	0%
Vol Right, %	0%	100%	0%	0%	56%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	54	2	93	87	99	8	151	2	4	78
LT Vol	0	0	0	87	43	0	151	0	0	0
Through Vol	0	2	0	0	56	0	0	2	0	78
RT Vol	54	0	93	0	0	8	0	0	4	0
Lane Flow Rate	57	2	98	91	105	8	159	2	4	82
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.101	0.003	0.159	0.135	0.144	0.014	0.246	0.003	0.007	0.118
Departure Headway (Hd)	6.412	5.212	5.85	5.347	4.951	6.066	5.563	4.86	6.386	5.186
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	555	679	610	667	719	587	642	730	557	685
Service Time	4.199	2.999	3.615	3.112	2.716	3.835	3.333	2.629	4.167	2.967
HCM Lane V/C Ratio	0.103	0.003	0.161	0.136	0.146	0.014	0.248	0.003	0.007	0.12
HCM Control Delay	9.9	8	9.7	9	8.6	8.9	10.2	7.6	9.2	8.7
HCM Lane LOS	A	A	A	A	A	A	B	A	A	A
HCM 95th-tile Q	0.3	0	0.6	0.5	0.5	0	1	0	0	0.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	4	0	78
Peak Hour Factor	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	4	0	82
Number of Lanes	0	0	1	1

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	8.7
HCM LOS	A

Lane

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	65	39	31	0	15	37	25	0	21	7	27
Peak Hour Factor	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	68	41	33	0	16	39	26	0	22	7	28
Number of Lanes	0	1	1	1	0	1	2	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	3
HCM Control Delay	8.5	8.2	8.2
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	75%	0%	100%	0%	0%	100%	0%	0%	28%
Vol Thru, %	25%	0%	0%	100%	0%	0%	100%	33%	5%
Vol Right, %	0%	100%	0%	0%	100%	0%	0%	67%	67%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	28	27	65	39	31	15	25	37	127
LT Vol	7	0	0	39	0	0	25	12	6
Through Vol	0	27	0	0	31	0	0	25	85
RT Vol	21	0	65	0	0	15	0	0	36
Lane Flow Rate	29	28	68	41	33	16	26	39	134
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.047	0.037	0.109	0.06	0.041	0.026	0.039	0.054	0.183
Departure Headway (Hd)	5.773	4.697	5.748	5.245	4.541	5.877	5.374	4.902	4.925
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	619	760	623	682	786	608	665	729	729
Service Time	3.518	2.442	3.489	2.985	2.281	3.62	3.116	2.645	2.659
HCM Lane V/C Ratio	0.047	0.037	0.109	0.06	0.042	0.026	0.039	0.053	0.184
HCM Control Delay	8.8	7.6	9.2	8.3	7.5	8.8	8.3	7.9	8.8
HCM Lane LOS	A	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.1	0.1	0.4	0.2	0.1	0.1	0.1	0.2	0.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	36	6	85
Peak Hour Factor	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	38	6	89
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	8.8
HCM LOS	A

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	10	0	25	3	42	0	0	57	78
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	11	0	27	3	46	0	0	62	85
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	184	157	104	157	199	46	147			46		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	184	157	104	157	199	46	147			46		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	97	100			100		
cM capacity (veh/h)	755	734	950	808	695	1024	1435			1562		

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	11	27	49	147
Volume Left	11	0	3	0
Volume Right	0	27	0	85
cSH	808	1024	1435	1700
Volume to Capacity	0.01	0.03	0.00	0.09
Queue Length 95th (ft)	1	2	0	0
Control Delay (s)	9.5	8.6	0.5	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.9		0.5	0.0
Approach LOS	A			

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	17.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	1	3	0	0	0	0	3	7	50	17	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	1	3	0	0	0	0	3	8	54	18	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	134	138	18	138	134	7	18			11		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	134	138	18	138	134	7	18			11		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	100	100	100	100	100			97		
cM capacity (veh/h)	816	727	1060	808	731	1075	1598			1608		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	50	11	73
Volume Left	46	0	54
Volume Right	3	8	0
cSH	826	1700	1608
Volume to Capacity	0.06	0.01	0.03
Queue Length 95th (ft)	5	0	3
Control Delay (s)	9.6	0.0	5.5
Lane LOS	A		A
Approach Delay (s)	9.6	0.0	5.5
Approach LOS	A		

Intersection Summary			
Average Delay	6.6		
Intersection Capacity Utilization	20.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	77	3	14	43	486	0	0	76	334
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	84	3	15	47	528	0	0	83	363
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	903	886	264	886	1067	528	446			528		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	903	886	264	886	1067	528	446			528		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	67	98	97	96			100		
cM capacity (veh/h)	240	272	775	257	213	550	1115			1039		

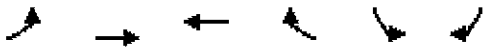
Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	84	18	575	446
Volume Left	84	0	47	0
Volume Right	0	15	0	363
cSH	257	430	1115	1700
Volume to Capacity	0.33	0.04	0.04	0.26
Queue Length 95th (ft)	34	3	3	0
Control Delay (s)	25.7	13.8	1.1	0.0
Lane LOS	D	B	A	
Approach Delay (s)	23.5		1.1	0.0
Approach LOS	C			

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	66.8%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	400	0	34	0	0	0	0	129	83	2	151	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	435	0	37	0	0	0	0	140	90	2	164	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	354	399	164	391	354	185	164			230		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	354	399	164	391	354	185	164			230		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	28	100	96	100	100	100	100			100		
cM capacity (veh/h)	600	538	880	544	570	857	1414			1337		

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	435	37	230	166
Volume Left	435	0	0	2
Volume Right	0	37	90	0
cSH	600	880	1700	1337
Volume to Capacity	0.72	0.04	0.14	0.00
Queue Length 95th (ft)	152	3	0	0
Control Delay (s)	25.1	9.3	0.0	0.1
Lane LOS	D	A		A
Approach Delay (s)	23.9		0.0	0.1
Approach LOS	C			

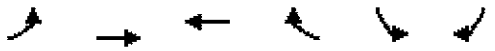
Intersection Summary			
Average Delay	13.0		
Intersection Capacity Utilization	40.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	199	37	25	13	13	172
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	216	40	27	14	14	187
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	149	122	215	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	149	122	215	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	72	95	96	99	99	
cM capacity (veh/h)	778	762	677	1085	1623	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	257	41	201
Volume Left	216	0	14
Volume Right	0	14	187
cSH	775	777	1623
Volume to Capacity	0.33	0.05	0.01
Queue Length 95th (ft)	36	4	1
Control Delay (s)	11.9	9.9	0.6
Lane LOS	B	A	A
Approach Delay (s)	11.9	9.9	0.6
Approach LOS	B	A	

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	23	492	399	0	1	22
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	535	434	0	1	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	434				1018	434
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	434				1018	434
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				100	96
cM capacity (veh/h)	1126				257	622

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	25	535	434	25
Volume Left	25	0	0	1
Volume Right	0	0	0	24
cSH	1126	1700	1700	586
Volume to Capacity	0.02	0.31	0.26	0.04
Queue Length 95th (ft)	2	0	0	3
Control Delay (s)	8.3	0.0	0.0	11.4
Lane LOS	A			B
Approach Delay (s)	0.4		0.0	11.4
Approach LOS				B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	243	144	111	0	25	163	23	0	121	3	15
Peak Hour Factor	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	256	152	117	0	26	172	24	0	127	3	16
Number of Lanes	0	1	2	0	0	1	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	3
HCM Control Delay	12.7	12	12.5
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	77%	0%
Vol Thru, %	0%	17%	0%	100%	30%	0%	100%	0%	23%	0%
Vol Right, %	0%	83%	0%	0%	70%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	121	18	243	96	159	25	163	23	13	97
LT Vol	0	3	0	96	48	0	163	0	3	0
Through Vol	0	15	0	0	111	0	0	23	0	97
RT Vol	121	0	243	0	0	25	0	0	10	0
Lane Flow Rate	127	19	256	101	167	26	172	24	14	102
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.265	0.034	0.472	0.172	0.262	0.053	0.32	0.04	0.029	0.182
Departure Headway (Hd)	7.478	6.391	6.639	6.134	5.64	7.227	6.72	6.011	7.5	6.41
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	479	557	542	583	634	493	532	592	475	556
Service Time	5.251	4.164	4.397	3.892	3.397	5	4.493	3.783	5.278	4.189
HCM Lane V/C Ratio	0.265	0.034	0.472	0.173	0.263	0.053	0.323	0.041	0.029	0.183
HCM Control Delay	13	9.4	15.2	10.2	10.4	10.4	12.7	9	10.5	10.6
HCM Lane LOS	B	A	C	B	B	B	B	A	B	B
HCM 95th-tile Q	1.1	0.1	2.5	0.6	1	0.2	1.4	0.1	0.1	0.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	10	3	97
Peak Hour Factor	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	11	3	102
Number of Lanes	0	0	1	1

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	10.6
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	80	41	37	0	28	33	38	0	58	11	36
Peak Hour Factor	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	84	43	39	0	29	35	40	0	61	12	38
Number of Lanes	0	1	1	1	0	1	2	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	3
HCM Control Delay	8.9	8.5	8.9
HCM LOS	A	A	A

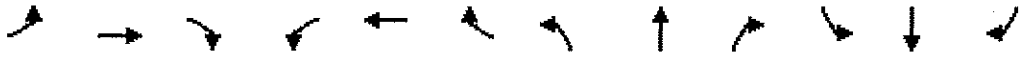
Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	84%	0%	100%	0%	0%	100%	0%	0%	18%
Vol Thru, %	16%	0%	0%	100%	0%	0%	100%	22%	11%
Vol Right, %	0%	100%	0%	0%	100%	0%	0%	78%	72%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	69	36	80	41	37	28	22	49	95
LT Vol	11	0	0	41	0	0	22	11	10
Through Vol	0	36	0	0	37	0	0	38	68
RT Vol	58	0	80	0	0	28	0	0	17
Lane Flow Rate	73	38	84	43	39	29	23	52	100
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.119	0.05	0.137	0.064	0.05	0.049	0.035	0.071	0.141
Departure Headway (Hd)	5.881	4.761	5.871	5.368	4.663	6.005	5.501	4.955	5.084
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	607	748	609	665	764	594	648	719	702
Service Time	3.636	2.516	3.625	3.122	2.417	3.763	3.259	2.712	2.839
HCM Lane V/C Ratio	0.12	0.051	0.138	0.065	0.051	0.049	0.035	0.072	0.142
HCM Control Delay	9.4	7.8	9.6	8.5	7.7	9.1	8.5	8.1	8.7
HCM Lane LOS	A	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.5	0.2	0.2	0.2	0.1	0.2	0.5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	17	10	68
Peak Hour Factor	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	18	11	72
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	8.7
HCM LOS	A

Lane



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	6	1	55	5	87	0	0	62	67
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	7	1	60	5	95	0	0	67	73
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	270	209	104	209	246	95	140			95		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	270	209	104	209	246	95	140			95		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	94	100			100		
cM capacity (veh/h)	638	685	951	746	654	962	1443			1499		

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	7	61	100	140
Volume Left	7	0	5	0
Volume Right	0	60	0	73
cSH	746	954	1443	1700
Volume to Capacity	0.01	0.06	0.00	0.08
Queue Length 95th (ft)	1	5	0	0
Control Delay (s)	9.9	9.0	0.4	0.0
Lane LOS	A	A	A	
Approach Delay (s)	9.1		0.4	0.0
Approach LOS	A			

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	18.8%	ICU Level of Service	A
Analysis Period (min)	15		

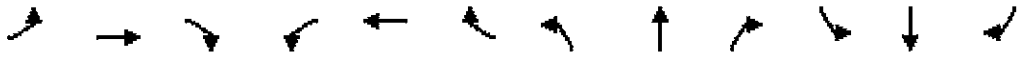
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	82	2	4	0	0	0	0	10	10	49	19	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	89	2	4	0	0	0	0	11	11	53	21	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	143	149	21	149	143	16	21			22		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	143	149	21	149	143	16	21			22		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	100	100	100	100	100	100			97		
cM capacity (veh/h)	805	718	1057	793	723	1063	1595			1594		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	96	22	74
Volume Left	89	0	53
Volume Right	4	11	0
cSH	811	1700	1594
Volume to Capacity	0.12	0.01	0.03
Queue Length 95th (ft)	10	0	3
Control Delay (s)	10.0	0.0	5.4
Lane LOS	B		A
Approach Delay (s)	10.0	0.0	5.4
Approach LOS	B		

Intersection Summary				
Average Delay	7.1			
Intersection Capacity Utilization	21.9%	ICU Level of Service	A	
Analysis Period (min)	15			

APPENDIX G

EXISTING + PROJECT + CUMULATIVE PROJECTS PEAK HOUR INTERSECTION CALCULATION SHEETS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	64	1	6	45	309	0	0	110	261
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	70	1	7	49	336	0	0	120	284
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	702	695	261	695	837	336	403			336		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	702	695	261	695	837	336	403			336		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	80	100	99	96			100		
cM capacity (veh/h)	337	350	777	345	290	706	1155			1223		

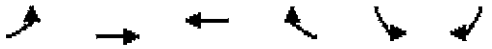
Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	70	8	385	403
Volume Left	70	0	49	0
Volume Right	0	7	0	284
cSH	345	586	1155	1700
Volume to Capacity	0.20	0.01	0.04	0.24
Queue Length 95th (ft)	19	1	3	0
Control Delay (s)	18.0	11.2	1.4	0.0
Lane LOS	C	B	A	
Approach Delay (s)	17.4		1.4	0.0
Approach LOS	C			

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	217	0	109	0	0	0	0	137	105	2	172	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	236	0	118	0	0	0	0	149	114	2	187	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	397	454	187	516	397	206	187			263		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	397	454	187	516	397	206	187			263		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	58	100	86	100	100	100	100			100		
cM capacity (veh/h)	562	501	855	404	539	835	1387			1301		

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	236	118	263	189
Volume Left	236	0	0	2
Volume Right	0	118	114	0
cSH	562	855	1700	1301
Volume to Capacity	0.42	0.14	0.15	0.00
Queue Length 95th (ft)	52	12	0	0
Control Delay (s)	16.0	9.9	0.0	0.1
Lane LOS	C	A		A
Approach Delay (s)	13.9		0.0	0.1
Approach LOS	B			

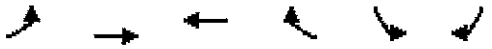
Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	32.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	215	32	32	27	87	194
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	234	35	35	29	95	211
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	341	295	400	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	341	295	400	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	57	94	93	97	94	
cM capacity (veh/h)	540	581	507	1085	1623	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	268	64	305
Volume Left	234	0	95
Volume Right	0	29	211
cSH	545	670	1623
Volume to Capacity	0.49	0.10	0.06
Queue Length 95th (ft)	68	8	5
Control Delay (s)	17.9	10.9	2.6
Lane LOS	C	B	A
Approach Delay (s)	17.9	10.9	2.6
Approach LOS	C	B	

Intersection Summary			
Average Delay		9.9	
Intersection Capacity Utilization		43.7%	ICU Level of Service A
Analysis Period (min)		15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	42	221	233	3	0	53
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	240	253	3	0	58
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	257				586	255
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	257				586	255
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				100	93
cM capacity (veh/h)	1308				456	784

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	46	240	257	58
Volume Left	46	0	0	0
Volume Right	0	0	3	58
cSH	1308	1700	1700	784
Volume to Capacity	0.03	0.14	0.15	0.07
Queue Length 95th (ft)	3	0	0	6
Control Delay (s)	7.9	0.0	0.0	10.0
Lane LOS	A			A
Approach Delay (s)	1.3		0.0	10.0
Approach LOS				A

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	29.1%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	93	142	56	0	8	161	2	0	54	0	2
Peak Hour Factor	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	98	149	59	0	8	169	2	0	57	0	2
Number of Lanes	0	1	2	0	0	1	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	3
HCM Control Delay	9.2	10.3	9.9
HCM LOS	A	B	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	100%	0%
Vol Thru, %	0%	0%	0%	100%	46%	0%	100%	0%	0%	0%
Vol Right, %	0%	100%	0%	0%	54%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	54	2	93	95	103	8	161	2	4	78
LT Vol	0	0	0	95	47	0	161	0	0	0
Through Vol	0	2	0	0	56	0	0	2	0	78
RT Vol	54	0	93	0	0	8	0	0	4	0
Lane Flow Rate	57	2	98	100	109	8	169	2	4	82
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.102	0.003	0.16	0.149	0.151	0.014	0.263	0.003	0.008	0.12
Departure Headway (Hd)	6.471	5.271	5.876	5.373	4.992	6.091	5.589	4.885	6.443	5.243
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	549	671	607	663	712	583	637	725	551	677
Service Time	4.269	3.069	3.648	3.146	2.765	3.872	3.369	2.666	4.233	3.033
HCM Lane V/C Ratio	0.104	0.003	0.161	0.151	0.153	0.014	0.265	0.003	0.007	0.121
HCM Control Delay	10	8.1	9.8	9.1	8.7	9	10.4	7.7	9.3	8.8
HCM Lane LOS	A	A	A	A	A	A	B	A	A	A
HCM 95th-tile Q	0.3	0	0.6	0.5	0.5	0	1.1	0	0	0.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	4	0	78
Peak Hour Factor	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	4	0	82
Number of Lanes	0	0	1	1

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	8.8
HCM LOS	A

Lane

Intersection	
Intersection Delay, s/veh	8.6
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	65	51	31	0	15	47	25	0	21	7	27
Peak Hour Factor	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	68	54	33	0	16	49	26	0	22	7	28
Number of Lanes	0	1	1	1	0	1	2	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	3
HCM Control Delay	8.6	8.3	8.3
HCM LOS	A	A	A

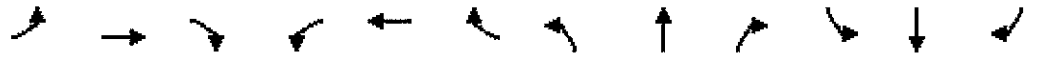
Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	75%	0%	100%	0%	0%	100%	0%	0%	28%
Vol Thru, %	25%	0%	0%	100%	0%	0%	100%	39%	5%
Vol Right, %	0%	100%	0%	0%	100%	0%	0%	61%	67%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	28	27	65	51	31	15	31	41	127
LT Vol	7	0	0	51	0	0	31	16	6
Through Vol	0	27	0	0	31	0	0	25	85
RT Vol	21	0	65	0	0	15	0	0	36
Lane Flow Rate	29	28	68	54	33	16	33	43	134
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.048	0.038	0.11	0.079	0.041	0.026	0.05	0.059	0.185
Departure Headway (Hd)	5.838	4.762	5.776	5.273	4.569	5.907	5.403	4.97	4.986
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	612	749	620	678	781	605	661	718	718
Service Time	3.586	2.51	3.52	3.017	2.313	3.656	3.153	2.72	2.727
HCM Lane V/C Ratio	0.047	0.037	0.11	0.08	0.042	0.026	0.05	0.06	0.187
HCM Control Delay	8.9	7.7	9.2	8.5	7.5	8.8	8.4	8	8.9
HCM Lane LOS	A	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0.1	0.4	0.3	0.1	0.1	0.2	0.2	0.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	36	6	85
Peak Hour Factor	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	38	6	89
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	8.9
HCM LOS	A

Lane



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	13	0	25	3	42	0	0	57	78
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	14	0	27	3	46	0	0	62	85
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	184	157	104	157	199	46	147			46		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	184	157	104	157	199	46	147			46		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	98	100	97	100			100		
cM capacity (veh/h)	755	734	950	808	695	1024	1435			1562		

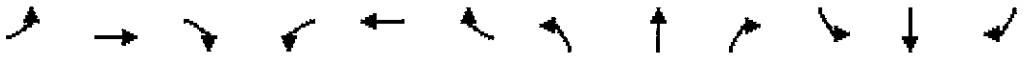
Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	14	27	49	147
Volume Left	14	0	3	0
Volume Right	0	27	0	85
cSH	808	1024	1435	1700
Volume to Capacity	0.02	0.03	0.00	0.09
Queue Length 95th (ft)	1	2	0	0
Control Delay (s)	9.5	8.6	0.5	0.0
Lane LOS	A	A	A	
Approach Delay (s)	8.9		0.5	0.0
Approach LOS	A			

Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	17.8%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	42	1	3	0	0	0	0	3	8	50	20	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	1	3	0	0	0	0	3	9	54	22	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	138	142	22	142	138	8	22			12		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	138	142	22	142	138	8	22			12		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	100	100	100	100	100			97		
cM capacity (veh/h)	811	723	1055	803	727	1075	1594			1607		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	50	12	76
Volume Left	46	0	54
Volume Right	3	9	0
cSH	821	1700	1607
Volume to Capacity	0.06	0.01	0.03
Queue Length 95th (ft)	5	0	3
Control Delay (s)	9.7	0.0	5.3
Lane LOS	A		A
Approach Delay (s)	9.7	0.0	5.3
Approach LOS	A		

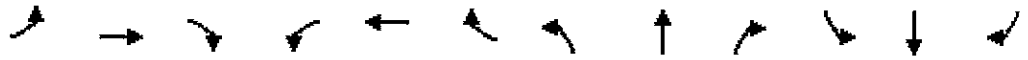
Intersection Summary				
Average Delay	6.4			
Intersection Capacity Utilization	20.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	79	3	14	106	498	0	0	81	339
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	86	3	15	115	541	0	0	88	368
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1061	1044	272	1044	1228	541	457			541		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1061	1044	272	1044	1228	541	457			541		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	55	98	97	90			100		
cM capacity (veh/h)	178	205	766	191	159	541	1104			1027		

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	86	18	657	457
Volume Left	86	0	115	0
Volume Right	0	15	0	368
cSH	191	380	1104	1700
Volume to Capacity	0.45	0.05	0.10	0.27
Queue Length 95th (ft)	53	4	9	0
Control Delay (s)	38.5	14.9	2.6	0.0
Lane LOS	E	B	A	
Approach Delay (s)	34.4		2.6	0.0
Approach LOS	D			

Intersection Summary				
Average Delay	4.4			
Intersection Capacity Utilization	71.6%	ICU Level of Service	C	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	406	0	57	0	0	0	0	198	87	2	158	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	441	0	62	0	0	0	0	215	95	2	172	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	439	486	172	501	439	262	172			310		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	439	486	172	501	439	262	172			310		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	16	100	93	100	100	100	100			100		
cM capacity (veh/h)	528	481	872	446	511	776	1405			1251		

Direction, Lane #	EB 1	EB 2	NB 1	SB 1
Volume Total	441	62	310	174
Volume Left	441	0	0	2
Volume Right	0	62	95	0
cSH	528	872	1700	1251
Volume to Capacity	0.84	0.07	0.18	0.00
Queue Length 95th (ft)	214	6	0	0
Control Delay (s)	37.6	9.4	0.0	0.1
Lane LOS	E	A		A
Approach Delay (s)	34.1		0.0	0.1
Approach LOS	D			

Intersection Summary			
Average Delay	17.4		
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	205	40	33	80	38	177
Sign Control		Stop	Stop		Free	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	223	43	36	87	41	192
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	284	179	275	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	284	179	275	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	61	94	94	92	97	
cM capacity (veh/h)	576	697	616	1085	1623	

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	266	123	234
Volume Left	223	0	41
Volume Right	0	87	192
cSH	593	888	1623
Volume to Capacity	0.45	0.14	0.03
Queue Length 95th (ft)	58	12	2
Control Delay (s)	15.9	9.7	1.5
Lane LOS	C	A	A
Approach Delay (s)	15.9	9.7	1.5
Approach LOS	C	A	

Intersection Summary			
Average Delay	9.3		
Intersection Capacity Utilization	39.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	23	504	409	0	1	22
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	25	548	445	0	1	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	445				1042	445
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	445				1042	445
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				100	96
cM capacity (veh/h)	1116				249	613

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	25	548	445	25
Volume Left	25	0	0	1
Volume Right	0	0	0	24
cSH	1116	1700	1700	577
Volume to Capacity	0.02	0.32	0.26	0.04
Queue Length 95th (ft)	2	0	0	3
Control Delay (s)	8.3	0.0	0.0	11.5
Lane LOS	A			B
Approach Delay (s)	0.4		0.0	11.5
Approach LOS				B

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	36.5%	ICU Level of Service	A
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	243	156	111	0	25	173	23	0	121	3	15
Peak Hour Factor	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	256	164	117	0	26	182	24	0	127	3	16
Number of Lanes	0	1	2	0	0	1	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	2
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	2	2	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	2	3
HCM Control Delay	12.8	12.3	12.6
HCM LOS	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	100%	0%	0%	77%	0%
Vol Thru, %	0%	17%	0%	100%	32%	0%	100%	0%	23%	0%
Vol Right, %	0%	83%	0%	0%	68%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	121	18	243	104	163	25	173	23	13	97
LT Vol	0	3	0	104	52	0	173	0	3	0
Through Vol	0	15	0	0	111	0	0	23	0	97
RT Vol	121	0	243	0	0	25	0	0	10	0
Lane Flow Rate	127	19	256	109	172	26	182	24	14	102
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.267	0.034	0.474	0.188	0.271	0.053	0.342	0.041	0.029	0.184
Departure Headway (Hd)	7.541	6.455	6.677	6.171	5.689	7.261	6.754	6.045	7.567	6.478
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	474	551	537	579	628	491	530	589	471	550
Service Time	5.324	4.237	4.439	3.933	3.451	5.037	4.53	3.82	5.352	4.262
HCM Lane V/C Ratio	0.268	0.034	0.477	0.188	0.274	0.053	0.343	0.041	0.03	0.185
HCM Control Delay	13.1	9.5	15.4	10.4	10.6	10.4	13	9.1	10.6	10.7
HCM Lane LOS	B	A	C	B	B	B	B	A	B	B
HCM 95th-tile Q	1.1	0.1	2.5	0.7	1.1	0.2	1.5	0.1	0.1	0.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	10	3	97
Peak Hour Factor	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	11	3	102
Number of Lanes	0	0	1	1

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	10.7
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	80	53	37	0	28	43	38	0	58	11	36
Peak Hour Factor	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	84	56	39	0	29	45	40	0	61	12	38
Number of Lanes	0	1	1	1	0	1	2	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	3	3	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	3
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	3
HCM Control Delay	8.9	8.5	8.9
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	84%	0%	100%	0%	0%	100%	0%	0%	18%
Vol Thru, %	16%	0%	0%	100%	0%	0%	100%	27%	11%
Vol Right, %	0%	100%	0%	0%	100%	0%	0%	73%	72%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	69	36	80	53	37	28	29	52	95
LT Vol	11	0	0	53	0	0	29	14	10
Through Vol	0	36	0	0	37	0	0	38	68
RT Vol	58	0	80	0	0	28	0	0	17
Lane Flow Rate	73	38	84	56	39	29	30	55	100
Geometry Grp	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.12	0.051	0.138	0.084	0.051	0.049	0.046	0.077	0.143
Departure Headway (Hd)	5.942	4.822	5.897	5.394	4.689	6.036	5.532	5.02	5.145
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	601	737	605	661	759	590	644	708	692
Service Time	3.707	2.587	3.658	3.154	2.449	3.802	3.298	2.786	2.91
HCM Lane V/C Ratio	0.121	0.052	0.139	0.085	0.051	0.049	0.047	0.078	0.145
HCM Control Delay	9.5	7.8	9.6	8.7	7.7	9.1	8.6	8.2	8.8
HCM Lane LOS	A	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.4	0.2	0.5	0.3	0.2	0.2	0.1	0.2	0.5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	17	10	68
Peak Hour Factor	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	18	11	72
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	3
Conflicting Approach Right	EB
Conflicting Lanes Right	3
HCM Control Delay	8.8
HCM LOS	A

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	7	1	55	5	87	0	0	62	67
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	8	1	60	5	95	0	0	67	73
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	270	209	104	209	246	95	140			95		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	270	209	104	209	246	95	140			95		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	94	100			100		
cM capacity (veh/h)	638	685	951	746	654	962	1443			1499		

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	8	61	100	140
Volume Left	8	0	5	0
Volume Right	0	60	0	73
cSH	746	954	1443	1700
Volume to Capacity	0.01	0.06	0.00	0.08
Queue Length 95th (ft)	1	5	0	0
Control Delay (s)	9.9	9.0	0.4	0.0
Lane LOS	A	A	A	
Approach Delay (s)	9.1		0.4	0.0
Approach LOS	A			

Intersection Summary			
Average Delay	2.2		
Intersection Capacity Utilization	18.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	82	2	4	0	0	0	0	10	14	49	20	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	89	2	4	0	0	0	0	11	15	53	22	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	147	154	22	152	147	18	22			26		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	147	154	22	152	147	18	22			26		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	100	100	100	100	100	100			97		
cM capacity (veh/h)	801	713	1055	789	720	1060	1594			1588		

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	96	26	75
Volume Left	89	0	53
Volume Right	4	15	0
cSH	807	1700	1588
Volume to Capacity	0.12	0.02	0.03
Queue Length 95th (ft)	10	0	3
Control Delay (s)	10.1	0.0	5.3
Lane LOS	B		A
Approach Delay (s)	10.1	0.0	5.3
Approach LOS	B		

Intersection Summary			
Average Delay	6.9		
Intersection Capacity Utilization	22.0%	ICU Level of Service	A
Analysis Period (min)	15		